MODEL

HTM-1005R/RA

HDTV/SDTV MULTI FORMAT
COLOR MONITOR

OPERATION MANUAL

Ikegami

Caution (AC/DC input type)

For the use of nickel-hydrogen batteries, a parallel connection of two or more batteries is possible. Battery makers, however, say that their warranty will not cover any products if they are used for “monitors or lighting equipment”, since the lifetime of batteries is shortened in such use environments due to the heat generated by the batteries themselves.
It is therefore not recommendable to use nickel hydrogen batteries for this monitor.




SA 1965

The lightning flash with arrowhead inside a triangle is intended to warn the user that parts inside the product are dangerous and many cause electric hazards.


SA 1966

The exclamation mark inside a triangle is intended to inform users that important operating and servicing instructions are provided with the equipment.

WARNING: FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS (REFER TO SERVICE LITERATURE).

WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR WATER.

Instructions for Disposal of Electric and Electronic Equipment in Private Household



Disposal of used Electric and Electronic Equipment
(Applicable in the European Union and other European countries with separate collection systems)

This symbol on the product, or in the related documents in the package, indicates that this product shall not be treated as normal household waste. Instead, it should be taken to a proper applicable collection point or depot for the recycling of electric and electronic equipment.

By ensuring this product is disposed of correctly, you will help prevent possible negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources.
For more detailed information about recycling of this product, please contact your local city authority, your household waste disposal service or the place where you purchased the product.

INFORMATION TO USER FOR FCC

Warning

This equipment generates, uses and can radiated radio frequency energy and if not installed and used in accordance with the instruction manual. May cause interference to radio communications.
It has been tested as a Class A computing device and found to comply within the limits for a Class A computing device in accordance with the specifications in subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.
Operation of this equipment in a residential area is likely to cause interference in which case the user will be required at his own expense to take whatever measures may be required to correct the interference.

IMPORTANT SAFETY INSTRUCTION

1. General

1) Read all instructions provided.
2) Save these instructions for future use.
3) Follow all warnings and instructions marked on the television equipment.
4) Never insert objects of any kind into this television monitor through cabinet slots as they may come in contact with dangerous voltage points or short out parts, resulting in fire or electric hazards, Never spill liquid of any kind on the television monitor.
5) Do not attempt to service this television monitor yourself as operating or removing covers many expose you to dangerous voltage or other hazards, Refer all servicing to qualified service personnel.
6) Do not use attachments not recommended by the television equipment manufacturer as they may result in the risk of fire, electric shock, or injury to persons.
7) This television monitor has been preadjusted to meet the respective broadcasting standard signals. So, it cannot be used with the signals of different broadcasting standards.
8) When keeping or transporting the unit for a long time, pack it in the supplied carton or equivalent.

2. Power supply

1) This television equipment should be operated only from the type of power source indicated on the marking label.
2) This television equipment is provided with a three-wire grounding type plug with a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet.
   Do not defeat the safety purpose of the grounding-type plug.
3) When connecting and disconnecting the power cable, be sure to hold the plug.
4) Do not allow anything to rest on the power cord. Do not place this television equipment where the cord will be abused by persons walking on it.
5) For added protection for this television equipment during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damage to the equipment due to lightning and power-line surges.
6) Do not overload wall outlets and extension cords as this can result in fire or electric shock.

3. Usage and location

1) Do not use this television equipment near water - for example, near a bath tub, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, or the like.
2) Do not place this television equipment on an unstable cart, stand, or table. The television equipment may fall, causing serious injury to children and adults, and serious damage to the equipment. Use only with a cart or stand recommended by the manufacture, or sold with the television equipment. Wall or shelf mounting should follow the manufacture's instructions, and should use a mounting kit approved by the manufacture.
   Television equipment and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the equipment and cart combination to overturn.



IMPORTANT SAFETY INSTRUCTION

3) Slots and openings in the cabinet and the back or bottom are provided for vitiation, and to ensure reliable operation of the monitor and to protect it from overheating, these openings should never be blocked or covered. The openings should never be blocked by placing the television equipment on a bed, sofa, rug, or other similar surface. (This television equipment should never be placed near or over a radiator or heat register.)
   This television equipment monitor should not be placed in a built-in installation such as a bookcase unless proper ventilation is provided.
4) Avoid operating or placing (keeping) in a hot (+40°C or over) or cold (less than 0°C), high vibration, or dusty place. Avoid operating or placing (keeping) in a place exposed to direct sunlight, otherwise the CRT surface may deteriorate.
5) If an image of extremely high brightness is displayed on the screen for a long time, the CRT may get burned in.

4. Cleaning

1) Unplug this television equipment from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
2) Do not use thinner or benzine for cleaning. Otherwise, the cabinet may deform or the paint may peel away.

5. Repair

1) Unplug this television monitor from the wall outlet and refer servicing to qualified service personnel under the following conditions:
   a. When the power cord or plug is damaged or frayed.
   b. If liquid has been spilled into the television.
   c. If the television monitor has been exposed to rain or water.
   d. If the television does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the television monitor to normal operation.
   e. If the television monitor has been dropped or the cabinet has been damaged.
   f. When the monitor exhibits a distinct change in performance - this indicates a need for service.
2) When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacture that have the same characteristics as the original part. Unauthorized substitutions may result in fire. Electric shock, or injury to persons.
3) Upon completion of any service or repairs to this monitor, ask the service technician to perform routine safety checks to determine that the television is in safe operating condition.
4) For repair service, contact **Ikegami**'s authorized sales representative or **Ikegami** service desk directly.

PRECAUTIONS FOR OPERATIONS

1) Never let this unit fall or subject it to strong shock.

2) Do not remove the cabinet unless necessary. High-voltage parts are contained in the cabinet and they are very dangerous if you touch then. Only qualified service engineers are allowed to adjust the internal parts of the cabinet.

3) This color monitor has been adjusted to signals conforming to each broadcasting standard.
It cannot be used for signals of different broadcasting standards.
Be sure to operate the color monitor within the voltage range marked on its back.

4) If cabinet or screen is dirty, wipe with soft cloth. At this time, avoid using benzine or thinner.
Otherwise, the paint may peel away.

5) Note that, if video signals with high luminance are monitored on the CRT over a long period of time, the CRT may burn in the image.

6) Avoid using or storing this unit in the following places:
   - Hot (+40ºC or more) or cold (0ºC or less) places.
     Especially where this unit may be exposed to the direct rays of the sun; the cabinet may deform and the fluorescent screen of the CRT may deteriorate.
   - Humid and dusty places.
   - Places where there is considerable vibration.
   - Places exposed to rain or water.
   - When storing or transporting this unit, pack it in the supplied carton or equivalent.

7) If no image can be monitored even after performing user adjustment or the unit appears faulty, do not dismantle this unit by yourself. In such cases, contact the **Ikegami** service desk.

8) Should this unit fail within one year after delivery, it will be repaired free of charge unless the malfunction was caused by mishandling or misuse of the user.
However, the fuses are not covered by the warranty.

9) The specifications and appearance of this unit may be subject to change for further improvement without prior notice.

Precautions Upon Use

To ensure safe use of this monitor, read this manual carefully, paying particular attention to the following items.

1. **Do not use any power supply other than the regulation AC power.**
2. **Do not subjecting the monitor to strong impact.**
   Otherwise, it will result not only in malfunction, but explosion of the CRT as well.
3. **Avoid use and storage in the following places.**
   * **Locations which do not meet the designated ambient temperature**
     installing the monitor near equipment generating heat or in cabinets with closed vents causes the internal temperature of the monitor rise, which not only reduces the life of the electrical parts but also causes malfunction.
   * **Locations with rain, snow, or excess humidity**
     Locationing the monitor in the above conditions will cause malfunction.
   * **Strong magnetic fields**
4. **Avoid exposing the CRT to sunlight**
   Subjecting the CRT to direct sunlight for a long period of time deteriorates the florescent faces of the CRT. So avoid use outdoors.
5. **Avoid exposing to high luminance fixed image for long periods of time**
   Take care as this will cause burn in of the CRT.
   Also avoid displaying remote numbers in the remote entry state (remote numbers are displayed when the wireless remote controller is used) for long periods of time. When not using the wireless controller, set the remote number displayed on the screen to OFF.

Guarantee

Malfunctions occurring in normal use within one year from the date of purchase will be repaired free of charge. This does not apply to the fuses.
If no image is displayed after user adjustment or if malfunction is suspected, contact your nearest Ikegami dealer.

Accessories

This monitor is provided with the following accessories.
Check that none is missing.

1. Operation manual
2. AC cable
3. Remote connector

* Specifications and external dimensions are subject to change without prior notice.

⚠ CAUTION

Fan alarm

If the built-in fan is interrupted, the POWER LED starts blinking and the following message appears on screen. In this case, immediately turn OFF the power and contact the nearest Ikegami dealer.

```
WARNING:
FAN STOPPED !!

<POWER OFF PLEASE>
```

This message disappears 2 minutes later. The POWER LED still blinks 8 times in 2 seconds and remains off for 1 second repeatedly and the high-tension section shuts down itself. If no image is displayed on screen but the POWER LED is blinking, therefore, immediately turn OFF the power.

⚠ CAUTION

Battery alarm (AC/DC input type)

・External battery

If the DC voltage to the monitor drops below DC 10.8V on the battery power, the POWER LED starts blinking (on and off repeatedly) to warn of a battery shortage. In this case, immediately turn OFF the power and replace the battery with a fully charged one.

・Memory backup battery in the monitor

As the memory backup battery becomes low in voltage, “CHANGE BATTERY” appears on screen when the power is turned ON. In this case, immediately turn OFF the power and contact the nearest Ikegami dealer.

If the battery becomes dead, various adjustment data may be erased. You will have to make these adjustments every time the power is turned on.

CONTENTS

IMPORTANT SAFETY INSTRUCTION
PRECAUTIONS FOR OPERATIONS

1. General 1
1.1 General 1
1.2 Features 1

2. Specifications 3
2.1 Common specifications 3
(1) General 3
(2) Video signal system 3
(3) Brightness and contrast 3
(4) Deflection/sync system 3
(5) Function 4
(6) Memory 4
(7) Applicable standards 4
2.2 Individual specifications 4
(1) YPbPr/RGB input module (mounted as standard) 4
(2) MULTI-SDI input module (option) 5
(3) Embedded audio level meter display module (option) 6
(4) SD-SDI input module (option) 6
(5) Decoder input module (option) 6
2.3 Option 6
2.4 List of Optional Module Combinations 7
2.5 External View 8
(1) HTM-1005R 8
(2) HTM-1005R with DAM-1054/1058 9

3. Installation 10
3.1 External connection 10
(1) Standard module 10
(2)-1 MULTI-SDI module (DKM-1051) option 11
(2)-2 MULTI-SDI module (DKM-1051AV) option 11
(2)-3 MULTI-SDI module (DKM-1051AVD) option 12
(3) SD-SDI module (DK-1051, DK1052N, DK-10512, DEK-1052N) option 12
(4)-1 NTSC/PAL decoder module (DE-1051) option 13
(4)-2 NTSC serial digital composite & decoder module (DEK-1052N) option 13
(5) YPbPr/RGB input module (DCH-1051) option 14
3.2 Parallel remote connection 15
(1) Pin function 15
(2) Connector (standard accessory) 15
3.3 Power supply 16
(1) AC input type 16
(2) AC/DC input type 16

4. User adjustment 17
4.1 Names and functions of front panel parts .. 17
4.2 Description of preset data manipulation 20
(1) Switch operation during presetting 20
(2) Description of preset data 20
4.3 Procedures for registering data in memory or changing data 22
(1) Registering/changing PRESET data 22
(2) File data registration or change 23
4.4 Adjustment procedures 23
(1) Brightness adjustment 23
(2) Contrast adjustment 23
(3) White balance adjustment 24
(4) Color balance adjustment 25
(5) Screen center adjustment 26
(6) Screen distortion adjustment 27
(7) Screen size adjustment 28
4.5 Menu functions 30
(1) Menu list 30
(2) Menu operational flowchart 31
(3) Description of MENU 1 functions 32
(4) Description of MENU 2 functions 32
(5) Description of MENU 3 functions 33
(6) Description of MENU 4 functions 34
(7) Description of MENU 5 functions 34
(8) Description of MENU 6 functions 34
(9) Description of MENU 7 functions 35
4.6 Description of screen messages 36

5. Installation and removal of options 37
5.1 Installation procedures, installation examples and removal procedures for optional modules 37

6. Rack mount installation drawing 38
(1) XRM-744 installation drawing 38
(2) XRM-754 installation drawing 39
(3) RM-HTM-001 installation drawing 40

7. Memo 41

HTM-1005R/RA Multi-Format Color Monitor

1. General

1.1 General

This monitor is a 10-inch type HDTV/SDTV multi format color monitor. It is designed for use in various spaces such as a studio control room, edit/monitor rack, send-out control desk and field pick-up van, taking each HDTV format and use in combination with SDTV into account.

A newly developed SDI module supports multi format input and an embedded audio-compatible type is also available. The embedded audio type has versatile functions such as "analog or AES/EBU output", "sound output from speakers" and "audio level meter display". The monitoring of videos and voices can be realized on a single monitor. This monitor is excellent in space factors.

1.2 Features

(1) Multi format-compatible

Various broadcasting formats are supported as shown below.

[HDTV (including options)]

- 1080i/60, 59.94 SMPTE 274M
- 1080i/50 SMPTE 274M
- 1035i/60, 59.94 SMPTE 240M, BTA S-001B
- 720p/60, 59.94 SMPTE 296M
- 1080i/48, 47.95 SMPTE RP211

[SDTV (Including options)]

- 525i (NTSC) ITU-601
- 625i (PAL-B) ITU-601

The standard analog YPbPr/RGB input is compatible with the following formats.

	SDTV		HDTV		
	525i/59.94	625i/50	1035i	1080i	720p
HTM-1005R1	○	○	○	○	○
HTM-1005R2	○	○	○	○	×

The HDTV field frequency is 59.94/60Hz.

The HDTV frequency 50 Hz/48 Hz is optionally supported.

(2) Multi format SDI-compatible

An optional multi format-compatible SDI module (DKM-1051/AV/AVD) is capable of accepting HD-SDI signals or SD-SDI (4:2:2) signals without discrimination through a single input terminal.

The inputted HD-SDI signals or SD-SDI (4:2:2) signals are automatically identified on the monitor side and displayed in an appropriate format.

(3) Embedded audio output-compatible

An optional embedded audio-compatible multi format SDI module (DKM 1051AV/AVD), which is equipped with a demultiplexer circuit for extracting HD-SDI signal- or SD-SDI (4:2:2) signal-multiplexed audio signals, can output audio signals.

The audio output is available in two types, AV and AVD. The former outputs two channels of analog audio signals (channel switching is done by menu-setting) and the latter outputs eight channels in the AES/EBU format. You can also hear embedded audio voices from the standard speaker.

(4) Embedded audio-compatible audio level meter

The employment of an optional embedded audio-compatible audio level meter (DAM-1054/1058) realizes the simultaneous monitoring of both video signals and audio signals through a single cable only. The level meter is an LED excellent in visibility. This meter does not need any new space, unlike other signal-superimposed types where there is a fear of CRT burn-in markings, since it is mounted on the front of the main unit escutcheon.

(DKM-1051AV/AVD is needed.)

(5) Remote control functions

Three types of remote control are available. The remote controllers for parallel remote and serial remote modes can be used selectively according to the installation area or intended operation.

In addition to the conventional parallel remote control, mounted as standard is a serial remote input interface capable of remote controlling through a single BNC coaxial cable. The use of a serial remote controller SRC 301A (option) makes it possible to remote control up to 99 monitors individually simply by making loop through connections between monitors (e.g. 17/18/20/30/80/90/ HTM series monitors).

(6) Digital control

Each digital data is 10 bit-processed. The employment of an up-and-down method makes it easy to make a data change adjustment. A screen size, screen position, side pin correction and keystone distortion correction are also remote controllable and therefore various types of signal formats can be flexibly supported.

(7) Memorizing four types of color temperatures

In addition to the factory-set color temperature D93/D65, another type of color temperature can be memorized, so that the optimum white balance can also be selected quickly and easily according to the state of input video images or intended use.

(8) BFS (Beam Feedback System)

The employment of a BFS circuit designed to detect the CRT cathode current provides a steady black balance for a long time against variations in CRT emission.

(9) NTSC/PAL decoder

An optional decoder module DE-1051 supports both the NTSC and PAL-B systems and has the function of automatic discrimination. Also, an optional DEK-1052N, which has two NTSC/PAL analog composite inputs and two SD-SDI digital component (NTSC) inputs in a single slot, can be used in conjunction with an HD-SDI module.

(10) Various built-in markers

At the time of the display of 16:9, the 4:3, 13:9 or 14:9 marker-display is possible.

For the aspects 4:3 and 16:9, respectively, the 80%, 88%, 90%, 93%, 100% and other versatile markers can be displayed.

(11) Degaussing timer function

The degaussing function designed to be enabled automatically at monitor power-on is set (at the factory) in such a way that it starts approximately 10 seconds after power-on through the use of a timer. On the menu, this timer can be set for 10 to 14.5 seconds in steps of 0.5 second for each monitor on an individual basis.

This makes it possible to minimize the rush current that will flow in systems equipped with many monitors if the power to them is turned on at the same time.

(12) Construction designed with emphasis placed on maintainability and expendability

The modules in the signal processing system, including optional modules, which are of the plug-in type that is easy to insert and extract from the rear without removing the cover, are easy to maintain.

Besides the standard VEDEO PROCESS module (HDTV/SDTV YPbPr/RGB), up to two types of optional modules can be added for expansion.

(13) Employment of high performance in-line gun CRT

The employment of a high performance and high precision CRT equipped with an in-line gun, dot mask and mask pitch: 0.28 mm reduces the reflection of external light. The use of a CRT shadow mask improves remarkably the dooming (beam deflection caused by a thermal distortion of the shadow mask) that occurs when the brightness is increased.

(14) Brightness correction function in each screen size

For a CRT monitor, the current density will increase if the screen size is reduced as in the case where the scan changes from the normal mode to under mode or from 4:3 to 16:9. The brightness of a general monitor will increase by approximately 40% when the scan changes to 4:3 to 16:9. Therefore, video images will also change when the switching between aspect ratios is done. This monitor makes a brightness correction in four screen sizes respectively so that the brightness will be held constant even when the screen size changes.

(15) HD 4:3 scan function

For the HDTV input, this monitor has the function of allowing the 4:3 area video images only to fill the screen frame (4:3) and the images can be monitored in real time at the time of down-conversion to SDTV 4:3 during HDTV recording.

(16) High performance high-voltage regulation circuit

The high-voltage circuit, which employs a regulation circuit for controlling pulses on a scanning line-by-scanning line basis, has a high response speed and realizes highly stable images with the distortion of bright video image input on the screen minimized.

(17) Auto setup function

The use of an optional auto setup probe ASP-80 allows an automatic adjustment to the factory-set color temperatures with ease.

If the operator's own color temperature is set, any number of monitors can be adjusted to the same color temperature automatically.

(18) Lower power consumption (AC input-only type)

As compared with the conventional HTM-1005R, the HTM-1005RA is designed as standard specifically for AC input and an extra DC input circuit is omitted, so that the power consumption is reduced by approximately 15%.

The AC-input-only type is selectable between 100 VAC and 240 VAC and therefore suitable for overseas or worldwide use.

* The AC/DC input type is not designed to the specifications above.

2. Specifications

2.1 Common specifications

(1) General

1. Power supply

a) AC-only type (standard)
AC, single-phase, 50/60 Hz
100 V to 240 V ±10%
Power consumption: Approx. 95 W

b) AC/DC type (for use of optional DAC1051)
AC, single-phase, 50/60 Hz
100 V area: 100 V to 120 V ±10%
200 V area: 200 V to 240 V ±10%
Power consumption: Approx. 120 W
DC: 12 V ±10%
Power consumption: Approx. 100 W

* The power consumption above is at maximum load with full options installed.

2. Ambient temperature

0°C to +40°C

3. Humidity

90% or less (no condensation)

4. Outside dimensions/mass

222 (W) x 213 (H) x 415 (D) mm
Approx. 10 kg

5. Standard accessories

Power cable, remote connector, operation manual ... 1 set, each

6. Use

Continuous

7. X-ray radiation

0.1 mR/H or less
(in all areas 50 mm away from the outside of the monitor)

(2) Video signal system

1. Frequency response

a) HDTV (YPbPr/RGB input)
60 Hz to 17 MHz: +1/-3dB
17 MHz or higher: Downward characteristics

b) SDTV (Composite input)
60 Hz to 7 MHz: +1/-3dB
7 MHz or higher: Downward characteristics

2. Sag

Within 5%

3. Black level stability

Within 1% against a change of APL 10% to 90%

4. Aperture correction

+6 dB or more is variable at the following frequencies.

a) HDTV
10 MHz ±2.5 MHz

b) SDTV (for use of DE-1051)
5 MHz ±1 MHz

* No effect on the RGB input digital component or SDTV YPbPr input

5. Noise

Sync noise: -40 dB or less
Hum noise: -40 dB or less
Others: -40 dB or less

(3) Brightness and contrast

1. CRT

Dot trio pitch: 0.28 mm

2. Horizontal resolution

500 lines or more (HDTV) when the value in the screen center is 120 cd/m^2 (35 fl) for YPbPr input

3. Preset contrast

Factory-set value: 120 cd/m^2 (35 fl)

4. Maximum brightness

200 cd/m^2 or more
(100% window signal input, Brightness: PRESET, Contrast: MAX)

(4) Deflection/sync system

1. 16:9 display size

a) NORMAL: W174 x H98 mm
b) UNDER: W160 x H90 mm

2. Deflection

a) NORMAL SCAN (4:3/16:9)
b) UNDER SCAN (4:3/16:9)

3. Deflection distortion

Within ±1% of screen height
(Deflection linearity and raster distortion)

4. Sync stability

Steady operation is provided when the input signal is within the range below.
Internal sync: Video input level rated value ±6 dB
External sync: External sync input level 0.3 to 6 Vp-p

5. High voltage

Generated high voltage: 19 kV ±1 kV
High voltage fluctuation: Within ±0.5% when the beam current is in the range 0 to 300 μA
(Reference: 100 μA)

6. Convergence

90% area of screen height: Within 0.4 mm
90% area of screen width: Within 0.5 mm

(5) Function

1. Marker function

a) Center marker

The ON/OFF setting is made on the menu.

b) Safe title

The following markers are displayed according to the aspect ratio (4:3/16:9).

The numerals inside the parentheses are aspect ratios at the time of marker display.

Type

- 80% + 100% (4:3/16:9)
- 88% + 100% (4:3/16:9)
- 90% + 100% (4:3/16:9)
- 93% + 100% (4:3/16:9)
- 5 divided crosshatch (4:3/16:9)
- 10 divided crosshatch (4:3/16:9)
- Cross (4:3/16:9)
- 14:9 100% area (16:9)
- 13:9 100% area (16:9)
- 4:3 marker (16:9)
- 4:3 marker + 80% (4:3) marker (16:9)

2. Remote control

a) Parallel remote control

Channel COMPOSITE/AUX/HD-SDI/SD-SDI, RGB/YPbPr, COLOR/MONO, SYNC INT/EXT, 4:3/16:9, 4:3 MARKER ON/OFF, R/G TALLY ON/OFF

b) Serial remote control

The input interface comes standard and almost all monitor control is possible.

(A controller SRC-301A is optional.)

3. Beam feedback system (BFS)

4. Menu assist

- Input signal format setting
- RGB/YPbPr switching setting
- Marker center cross display ON/OFF setting
- Remote ID number setting
- DEGAUSS timer setting
- Each preset data % display
- Password setting

(6) Memory

1. Memory type

ROM: 64-Kbyte programmable ROM

RAM: 32-Kbyte static RAM

2. Battery/Backup

Hold time of memory: 10 years or more

Battery: Lithium battery (BR2330-1HF)

(7) Applicable standards

1. Safety standards

Compliant with UL1950

2. Electromagnetic interference

FCC Class-A

3. X-ray radiation

DHHS

2.2 Individual specifications

Standard specifications: YPbPr/RGB 1-input module only

(1) YPbPr/RGB input module (mounted as standard)

- YPbPr/RGB 1-input module
- DCH-1051 dual component module

(Optional module for YPbPr/RGB 1-input expansion)

1. Input/Output terminal

a) YPbPr/RGB 1-input module (standard)

YPbPr/RGB: BNC 1 line (loop through)

Sync input: BNC 1 line (loop through)

Audio input: RCA 1 line

b) DCH-1051 (for YPbPr/RGB 1-input expansion)

YPbPr/RGB: BNC 1 line (loop through)

2. Input signal format (YPbPr/RGB)

a) SDTV

- 525i/59.94
- 625i/50

b) HDTV

- 1035i/60, 59.94
- 1080i/60, 59.94
- 1080i/50 (option)
- 1080i/48, 47.95 (option)
- 720p/60, 59.94 (HTM-1005R1 type)

3. Input level

a) HDTV (BTA S-001B)

- Y, G, B, R input V: 700 mVp-p, positive polarity
  S: ±300 mVp-p
- Pb, Pr input V: ±350 mVp-p, positive polarity
- Sync input: ±300 mVp-p

b) SDTV (SMPTE/EBU N10)

- RGB input VS: 1.0 Vp-p, positive polarity
  V: 0.7 Vp-p, positive polarity
  VS: A sync signal is added to R, G and B, respectively.
  A sync signal is added to G only.
  V: R, G and B have no sync signal, respectively.
- YPbPr input: Positive polarity
  Y signal WHITE: 700 mVp-p
  SET UP: 0 mVp-p
  SYNC: 300 mVp-p
  PbPr signal: 525 mVp-p
  (100/0/75/0 COLOR BAR)
- Sync input : 0.3 V to 6 Vp-p, negative polarity

c) AUDIO: 316 mV (-10 dBV)

4. Input impedance

High impedance bridge connection or 75 Ω termination
(The 75 Ω terminating plug is optional.)

5. Return loss

46 dB or more (10 MHz)

(2) MULTI-SDI input module (option)

- DKM-1051 (multi SDI module)
- DKM-1051AV
  (Compatible with embedded analog audio output)
- DKM-1051AVD
  (Compatible with embedded AES/EBU output)

[SDI common specifications]

1. Input/Output terminal

a) DKM-1051
Input: BNC 2 lines (active loop through)
Output: BNC 1 line
(The active through is used for one selected output only.)

2. Input signal format (auto recognition)

SMPTE259M: 480i/59.94 (4:2:2)
576i/50 (4:2:2)
SMPTE292M: 1035i/60, 59.94
1080i/60, 59,94
720p/60, 59.94 (type 1 only.)
1080i/50
(Only when supported by the monitor)
1080i/48, 47.95
(Only when supported by the monitor)
Format switching: Auto switching

3. Input level

Rating 800 mVp-p ±10%

4. Transmission rate

HD-SDI: 1.485 Gb/s
SD-SDI (4:2:2): 270 Mb/s

5. Quantization bit rate

10 bits

6. Input/Output impedance

75 Ω

7. Return loss

a) HD-SDI: 15 dB or more (5 MHz-1/2 fc)
10 dB or more (1/2 fc-fc)
b) SD-SDI (4:2:2): 15 dB or more (270 MHz)

8. Transmission distance

100 m (5 CFB, 1.485 Gb/s)

[Audio signal system specifications]

1. Embedded audio common specifications

- Embedded audio input-compatible format
  SMPTE272M: 480i/59.94 (4:2:2)
  576i/50 (4:2:2)
  SMPTE299M: 1035i/60, 59.94
  1080i/60, 59.94
  1080i/50
  1080i/48, 47.95
  720p/60, 59.94
  * The embedded audio output is compatible with all formats even when the monitor main unit is not necessarily compatible with all formats.
- Format switching: Auto switching
- Sampling frequency: 48 kHz (sync with video clock)

2. Analog audio output (AV type)

- Output connector: XLR-5-32 type
  (Canon 5-pin male) x 1
- Line output: Analog audio
  2 channels
  Select ch1/2, ch3/4, ch5/6 or ch7/8 from the menu.
  Active (transformless) balanced output type
- Rated output level: +4 dBs
  * Load impedance 10 kΩ
  (digital audio level –20 dBFS)
- Maximum output level: +24 dBs
  * Load impedance 10 kΩ
  (digital audio level 0 dBFS)
- Output impedance: 50 Ω
- Minimum load impedance: 600 Ω
- D/A converter: 128-times over sampling
  8-times digital filter
- Quantization bit rate: 24 bits/ch
- Emphasis: 50/15 μs
  Digital emphasis
  (auto discrimination)
- Frequency response: 20 to 20 kHz ±1 dB
- S/N ratio: 80 dB or more
- Dynamic range: 80 dB or more
- Cross talk: 60 dB or more
  (1 kHz, maximum output)
- Total harmonic distortion: 0.1% or less (rated output)
  * Analog audio level: 0 dBs = 0.775 Vrms

3. AES/EBU output section (AVD type)

- Output connector: BNC pair channel x 4
  Channel (ch1 to ch8) output: (group 1, 2)
- Output standards: AES/EBU standards
  (for monitor)
- Output impedance: 75 Ω
  * Digital audio level: 0 dBFS = Full bits/full scale

4. Speaker output section

Embedded audio voices can also be output from the standard speaker.

- Number of speakers: 1 channel (standard)
- Output setting

  The voices from the speaker are output in three ways, odd, even/odd and even pair channels (ch1/2, ch3/4, ch5/6, ch7/8) selected on the menu.
- Analog/digital switching

  Whether to output the embedded audio input or standard analog audio input as the voices from the speaker can be set on the MENU.

(3) Embedded audio level meter display module (option)

- Embedded audio input-compatible format

  SMPTE272M: 480i/59.94 (4:2:2)
  576i/50 (4:2:2)

  SMPTE299M: 1035i/60, 59.94
  1080i/60, 59.94
  1080i/50
  1080i/48, 47.95
  720p/60, 59.94

  * The embedded audio output is compatible with all formats even when the monitor main unit is not necessarily compatible with all formats.
- Format switching: Auto switching
- Reference level: -20 dBFS
- Display segment: 13 segments
- Display level: -∞, -60, -50, -40, -35, -30, -25, -20, -16, -12, -8, -4, 0 dB
- Display device: -∞ to -25 dB: Green LED
  -20 to 0 dB: Amber LED
- Display panel size: 209 (W) x 22 (H) x 6 (D)

(4) SD-SDI input module (option)

- DK-1051 (4:2:2 digital component module)
- DK-1052N (4Fsc NTSC digital composite module)
- DK-10512 (4:2:2/4Fsc digital module)
- DEK-1052N (4Fsc digital, NTSC/PAL decoder module)

  The simultaneous mounting of the four types of modules above is impossible.

  To input digital composite signal using DK-1052N/10512, a decoder (DE-1051) is required.

1. Input/Output terminal

BNC 2 lines (active loop through)

It is also possible to output the signal linked to a channel selected on the monitor side by making the setting on the module.

2. Input signal format

a) DK-1051
SDI 4:2:2 digital component signal (525i/59.94, 625i/50)

b) DK-1052N
SDI 4Fsc digital composite signal (NTSC)

c) DK-10512
Compatible with both formats in a) and b)

d) DEK-1052N (SDI input section)
SDI 4Fsc digital composite signal (NTSC)

3. Input/Output level

Rating 800 mVp-p ±10% (output level is at 75 Ω termination.)
SCRAMBLED NRZI system

4. Transmission rate

DK-1051: 270Mb/s
DK-1052N, DEK-1052N: 143Mb/s
DK-10512: 143Mb/s, 270Mb/s

5. Quantization bit rate

10 bits

6. Input/Output impedance

75 Ω

7. Return loss

15 dB or more (270 MHz)

(5) Decoder input module (option)

- DE-1051 NTSC/PAL decoder module
- DEK-1052N (4Fsc digital, NTSC/PAL decoder module) (analog composite input section)

1. Input/Output terminal

BNC 2 systems (loop through)

2. Signal format

NTSC/PAL composite signal

3. Input level

VS: 1.0 Vp-p, positive polarity
V: 0.7 Vp-p, positive polarity

4. Input impedance

High impedance bridge connection or 75 Ω termination
(The 75 Ω terminating plug is optional.)

5. Return loss

46 dB or more (6 MHz)

2.3 Option

1. DKM-1051

HD-SDI/SD-SDI (4:2:2) multi SDI 2-input module

2. DKM-1051AV

Embedded analog 2-channel output-compatible multi SDI 2-input module

3. DKM-1051AVD

Embedded AES/EBU 8-channel output-compatible multi SDI 2-input module

4. DK-1051

SD-SDI (4:2:2) digital component 2-input module (not compatible with embedded mode)

5. DK-1052N

SD-SDI 4Fsc NTSC digital composite 2-input module (DE-1051 is required. Not compatible with embedded mode)

6. DEK-1052N

(It is impossible to mount this module in conjunction with DKM-1051* simultaneously.)
4-input module designed to mount DK-1052N and DE-1051 in a single slot
SD-SDI NTSC digital composite 2-input
NTSC/PAL analog composite 2-input
(Not compatible with embedded mode)

7. DAM-1054

4-ch embedded audio level meter display module (DKM-1051AV/AVD is required.)

8. DAM-1058

8-ch embedded audio level meter display module (DKM-1051AV/AVD is required.)

9. DE-1051

NTSC/PAL analog composite 2-input module

10. DCH-1051

YPbPr/RGB input module for 1-input expansion

11. SRC-301A

Serial remote controller

12. ASP-80

Auto setup probe
Auto adjustments of color temperatures

13. BR-1050

Battery adapter for BP-90

14. BR-1050L

Lithium ion battery adapter for BP-L90A
(BP-L90A is diverted to this purpose in terms of capacity.)

15. EX-1051A

Extender board for adjustment

16. ADC-1051 (factory option)

AC/DC module (built to AC/DC power supply specifications)
* When a module designed to AC/DC power supply specifications is necessary, it must be required when an order is placed, since a standard one is designed specifically fo AC use.

17. XRM-744

Rack mount adapter for two main units

18. XRM-754

Rack mount adapter for one main unit
(One main unit + Blank panel)

19. RM-HTM-001

Rack mount adapter for one main unit + one WFM
* For a Tektronix-made WFM700HD/A/M, use RM-

20. RM-HTM-002

Rack mount adapter for one main unit + one WFM made WFM700HD/A/M)

21. SC-1050

Soft carrying case

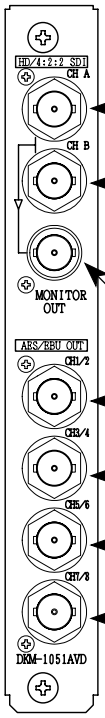
22. CC-1050

Hard carrying case

The specifications and appearance are subject prior notice for improvements.

	DKM-1051	DKM-1051AV	DKM-1051AV + DAM-1054	DKM-1051AV + DAM-1058	DKM-1051AVD	DKM-1051AVD + DAM-1054	DKM-1051AVD + DAM-1058	DK-1051	DK-1052N	DK-10512	DEK-10			
DKM-1051		×	×	×	×	×	×	○	×	○				
DKM-1051AV	×		×	×	×	×	×	○	×	○				
DKM-1051AV + DAM-1054	×	×		×	×	×	×	○	×	○				
DKM-1051AV + DAM-1058	×	×	×		×	×	×	○	×	○				
DKM-1051AVD	×	×	×	×		×	×	○	×	○				
DKM-1051AVD + DAM-1054	×	×	×	×	×		×	○	×	○				
DKM-1051AVD + DAM-1058	×	×	×	×	×	×		○	×					
DK-1051	○	○	○	○	○	○	○		×					
DK-1052N	×	×	×	×	×	×	×	×						
DK-10512	○	○	○	○	○	○	○	×	×					
DEK-1052N	×	×	×	×	×	×	×	×	×					
DE-1051	○	○	○	○	○	○	○	○	○					
DCH-1051	○	○	○	○	○	○	○	○	×					

(2)-3 MULTI-SDI module (DKM-1051AVD) option



MULTI-SDI module (DKM-1051AVD) option

MULTI SDI input

- Input SDI signal here.
- Acceptable input format
  1. 480i / 59.94 (4 : 2 : 2)
  2. 576i / 50 (4 : 2 : 2)
  3. 1035i / 59.94 (60)
  4. 1080i / 59.94 (60)
  5. 1080i / 50 (Option)
  6. 1080i / 47.95 (48) (Option)
  7. 720p / 59.94 (60)
     (The 720p is compatible with HTM-1005R1 only.)

MULTI SDI output

- Of the input SDI signals (A/B ch), the signal on a channel selected on the monitor side output here.

Embedded AES/EBU 8-ch output (0 dBFS)

- Eight channels (8-ch) of embedded audio signal superimposed on HD-SDI or SD-SDI signal output in the AES/EBU format.
  The output impedance is 75 Ω.

(Caution) For the mounting of this option, refer to "5. Installation and Removal of Options".
When DAM-1054 or DAM-1058 is mounted, this option can be installed in the "expansion slot 2 for option" only.

(3) SD-SDI module (DK-1051, DK1052N, DK-10512, DEK-1052N) option

Illustration of DK-1051

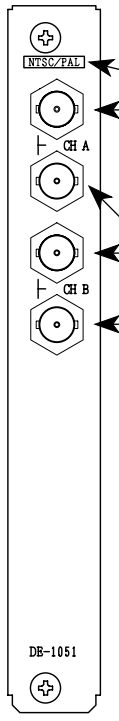


Illustration of DK-1051

SD-SDI module (DK-1051, DK1052N, DK-10512, DEK-1052N) option

The SD-SDI modules are available in three types below and the display varies with modules.

- "SDI 4:2:2" 4:2:2 digital component module (DK-1051)
- "SDI 4FscN" NTSC digital composite module (DK-1052N)
- "SDI 4:2:2 4FscN" 4:2:2 digital component & digital composite module (DK-10512N)

SD-SDI A/B input

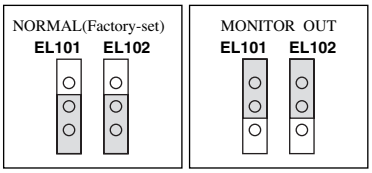
- Input SD-SDI signal here according to the following modules, respectively.
- DK-1051 4:2:2 serial digital component signal
- DK-1052N NTSC serial digital composite signal
- DK-10512 4:2:2 digital component, NTSC digital composite signal
  (The formats are detected automatically.)

SD-SDI A-output

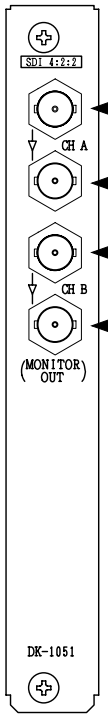
- The SD-SDI signal input to A-channel output here. (Active loop through)

SD-SDI B (monitor)-output

- The SD-SDI signal input to B-channel output.
- The signal selected on the monitor side can also output here by setting connectors in the module.
- <How to Set>



(4)-1 NTSC/PAL decoder module (DE-1051) option

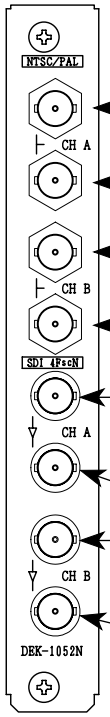


NTSC/PAL decoder module (DE-1051) option

Analog composite input

- Input NTSC/PAL signal.
- Acceptable input format
  1. 480i / 59.94 (NTSC)
  2. 576i / 50 (PAL)
- When loop through connections are not used, terminate with a terminating plug.
- When using external synchronization, input an external synchronizing signal to the external sync signal input on the VIDEO PROCESS module.

(4)-2 NTSC serial digital composite & decoder module (DEK-1052N) option



NTSC serial digital composite & decoder module (DEK-1052N) option

Analog composite input

- Input NTSC/PAL signal.
- Acceptable input format
  1. 480i / 59.94 (NTSC)
  2. 576i / 50 (PAL)
- When loop through connections are not used, terminate with a terminating plug.
- When using external synchronization, input an external synchronizing signal to the external sync signal input on the VIDEO PROCESS module.

SD-SDI A/B input

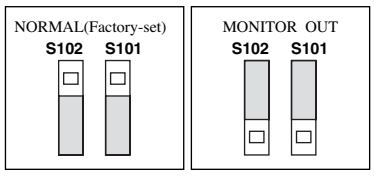
- Input 4Fsc NTSC digital composite signal.

SD-SDI A-output

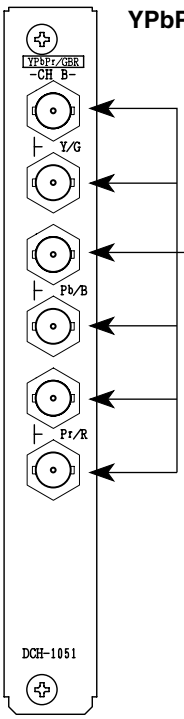
- The SD-SDI signal input to A-channel output from here. (Active loop through)

SD-SDI B (monitor)-output

- The SD-SDI signal input to B-channel output.
- The signal selected on the monitor side can also output here by setting switches in the module.
- <How to Set>



(5) YPbPr/RGB input module (DCH-1051) option



YPbPr/RGB input module (DCH-1051) option

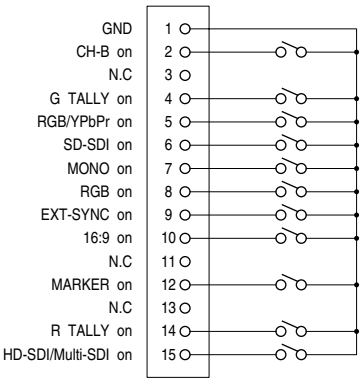
YPbPr/RGB input

- Input YPbPr signals or RGB signals.
- Acceptable input format
  1. 480i / 59.94
  2. 576i / 50
  3. 1035i / 59.94 (60)
  4. 1080i / 59.94 (60)
  5. 720p / 59.94 (60) (The 720p is compatible with HTM-1005R1 only.)
  6. 1080i / 47.95 (48) (Optionally supported)
  7. 1080i / 50 (Optionally supported)
- To set signal formats, the menu item 1-2 HDTV/SDTV must be set.
- For 1035i and 1080i/59.94 (60), either of them must be selected from the menu item 1-3.
- The YPbPr/RGB switching is done using the menu item 1-4.
- When loop through connections are not used, connect a terminating plug.
- The use of this option makes it possible to input two channels of YPbPr/RGB signals.

3.2 Parallel remote connection

(1) Pin function

Remote connector wiring



Functions of HTM-1050*/HTM-1005* parallel remote pins

Pin No.	Name	Operation
1	GND	Connecting each remote terminal to Pin 1 allows On-control.
2	CH-B on	Connect to Pin 1 to select the B-channel at the time of analog composite, SD-SDI, HD-SDI input. * If both Pin 2 and Pin 3 are open, the A-channel will be selected.
3	N.C	Free terminal
4	G TALLY on	Connect to Pin 1 to turn on G TALLY.
5	RGB/YPbPr on	Connect to Pin 1 to select the RGB/YPbPr input. For the A/B switching, Pin 2 is used at the same time. * If Pin 5, Pin 6 and Pin 15 are open when DE-1051 is mounted, analog composites will be selected.
6	SD-SDI on	Connect to Pin 1 to select the SD-SDI input module. For the A/B switching, Pin 2 is used at the same time. * If Pin 5, Pin 6 and Pin 15 are open when DE-1051 is mounted, analog composites will be selected.
7	MONO on	Connect to Pin 1 to set COLOR/MONO to MONO.
8	RGB on	Connect Pin 1 to set the RGB/YPbPr mode to RGB when the RGB/YPbPr input is selected.
9	EXT-SYNC on	Connect Pin 1 to set the sync of analog input to external synchronization (EXT-SYNC).
10	16:9 on	Connect to Pin 1 to set the aspect ratio (4:3/16:9) of SDTV signal to 16:9. For HDTV signal, the switching to 4:3 is done in the HD4:3 SCAN mode. To perform the channel switching and control at the same time, set the menu item 2-4 “CHANGE ASP.” to “MANUAL”.
11	N.C	Free terminal
12	MARKER on	Connect to Pin 1 to turn on the 4:3 marker.
13	N.C	Free terminal
14	R TALLY on	Connect to Pin 1 to turn on R TALLY.
15	HD-SDI/ Multi-SDI on	Connect to Pin 1 to select the HD-SDI/Multi-SDI input module. For the A/B switching, Pin 2 is used at the same time. * If Pin 5, Pin 6 and Pin 15 are open when DE-1051 is mounted, analog composites will be selected.

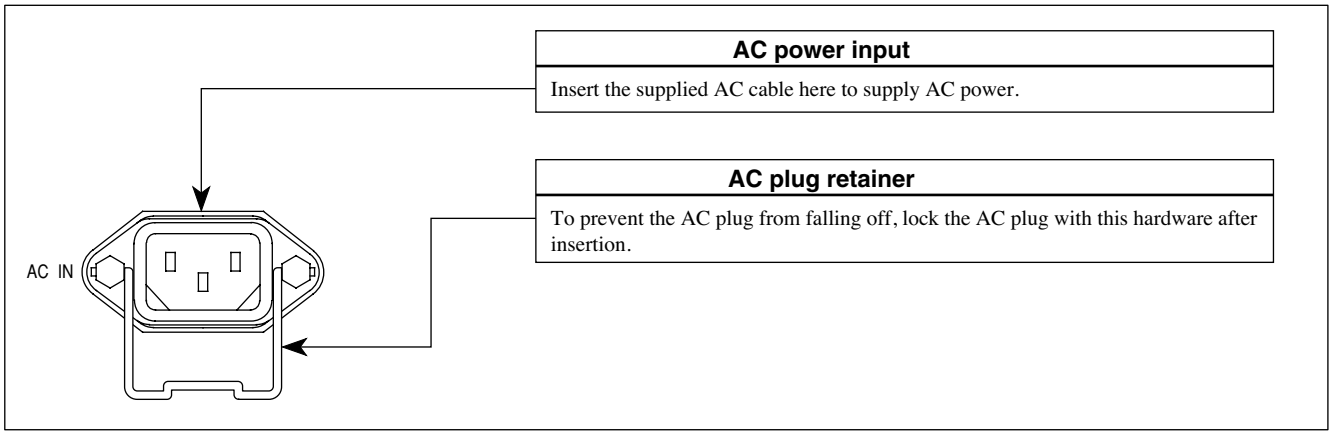
(2) Connector (standard accessory)

D sub 15-pin (male) mini-type connector

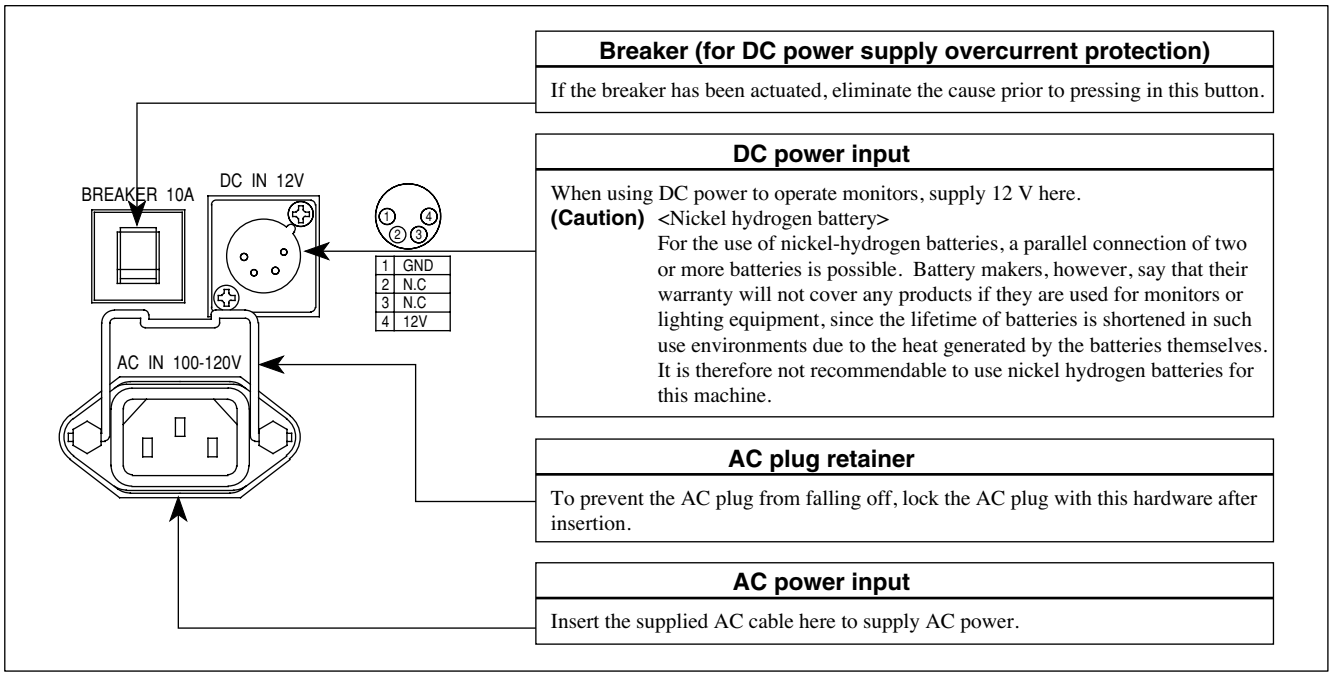
- HDB-15M (3011-15) Japan Aviation Electronics Industry-made

3.3 Power supply

(1) AC input type

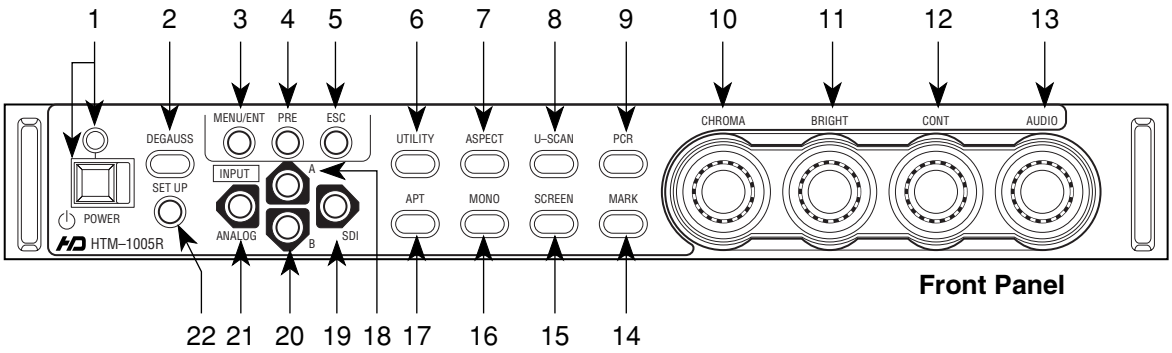


(2) AC/DC input type



4. User adjustment

4.1 Names and functions of front panel parts



Front Panel

1. POWER switch
2. DEGAUSS switch
3. MENU/ENT switch
4. PRE switch
5. ESC switch
6. UTILITY switch
7. ASPECT switch
8. U-SCAN switch
9. PCR switch
10. CHROMA manual control
11. BRIGHTNESS manual control
12. CONTRAST manual control
13. AUDIO manual volume control
14. MARKER switch
15. SCREEN switch
16. MONO switch
17. APERTURE switch

18 to 21: INPUT changeover switches. When MENU or PRESET data is changed, they serve as switches for moving cursors or increasing/decreasing data.

18. ch A select/Up switch
19. SDI input select/right-shift switch
20. ch B select/Down switch
21. ANALOG input select/left-shift switch
22. SET UP switch

The following terms used in the descriptions have the meanings below.

- SDTV: 525i, 625i
- HDTV: 1035i, 1080i, 720p
- SD-SDI: SDTV (525i, 625i)'s SDI
- HD-SDI: HDTV (1035i, 1080i, 720p)'s SDI

1. POWER switch and LED

This switch turns ON/OFF the power to the monitor.

If AC power and DC power are supplied at the same time, AC power will override DC power.

This LED goes on when the power to the monitor is turned on. If it blinks, think that a warning is given and take measures according to "Handling precautions" on Page 5.

2. DEGAUSS switch

This switch degausses the magnetization of the CRT shadow mask. Degaussing also takes place automatically at power-on. It is useless to press this switch repeatedly in rapid succession. It must be pressed at intervals of two to three minutes.

Although the degaussing system built into this machine is designed for use in severe environments, use an external degaussing system to degauss any extreme magnetization.

3. MENU/ENT switch

This switch is used to turn over the pages of a menu. It also serves as the data registration (ENT) switch when the PRESET setting screen is displayed.

4. PRE switch

This switch can display each PRESET setting screen.

5. ESC switch

When a menu is displayed, this switch clears the menu items. When the PRESET setting screen is displayed, it rests data to its previous state.

6. UTILITY switch

This switch serves as assigned using the menu item 2-3.

(1) INPUT selecting switch

If INPUT selecting is assigned to this switch, the switching between input signals will be done. (No switching takes place when the optional module is not mounted.)

In the case of analog input, the SYNC INT/EXT settings are memorized for each channel (composite input A/B, YPbPr/RGB input A/B), so that the switching takes place automatically at the same time the channel is changed.

The ASPECT settings (4:3/16:9) are also memorized for each channel (composite input A/B, YPbPr/RGB input A/B, SD-SDI ch A/B, HD-SDI ch A/B), so that the switching takes place automatically at the same time the channel is changed.

In addition, the switching between the settings of horizontal or vertical screen sizes, horizontal raster phases, etc. takes place automatically according to the format.

(2) COMB (for DE-1051)

(3) SYNC (SYNC INT/EXT switching)

(4) FILE (REF, FILE 1 to 3 switching)

(5) AUDIO CH (for DKM-1051AV or DKM-1051AVD)

7. ASPECT switch

The switching between 4:3 and 16:9 is done.

The settings (4:3/16:9) are memorized for each channel, so that the switching takes place automatically at the same time the channel is changed.

For the multi SDI input only, the ASPECT information is memorized on HD-SDI and SD-SDI individually, so that the ASPECT switching also takes place automatically at the same time the input format is changed.

For HDTV, the switching of "HD 4:3 scan" where the 4:3-area is magnified takes place.

8. U-SCAN switch

The switching between the normal scan and the under scan takes place.

For the HD 4:3 scan, the mode is forcedly set to the under scan.

In the U-SCAN mode, the LED in the control goes on.

9. PCR switch

This switch is used to observe horizontal and vertical sync signals.

The switching takes place in the order below.

H.DELAY → V.DELAY → H.V. DELAY → NORMAL

10. CHROMA manual control

When this control is pressed in, preset data is provided.

Pressing this control once again allows it to pop out.

While the control pops out, an adjustment can be made manually.

This control is disabled when RGB signals are input.

11. BRIGHTNESS manual control

While this control pops out, an adjustment can be made manually.

When this control is pressed in, preset data is provided.

Pressing this control once again allows it to pop out.

12. CONTRAST manual control

While this control pops out, an adjustment can be made manually.

When this control is pressed in, preset data is provided.

Pressing this control once again allows it to pop out.

13. AUDIO manual volume control

This control adjusts the sound volume of the speaker built into the monitor.

When this control is pressed in, pressing the control once again allows it to pop out.

14. MARKER switch

This switch is used to display markers.

The markers are displayed as follows.

80% marker → 88% marker → 90% marker → 93% marker → 5-division crosshatch → 10-division split crosshatch → Cross marker → 14:9 (100%) marker → 13:9 (100%) marker → 4:3 marker → 4:3 marker + 80% marker

15. SCREEN switch

This switch displays the R.G.B monochrome screen.

16. MONO switch

This switch performs the switching between COLOR and MONO.

In the MONO mode, the LED in the switch goes on.

This switch is disabled at the time of RGB input.

17. APERTURE switch

This switch turns ON/OFF APERTURE.

When it is turned ON, the LED in the switch goes on.

This switch, however, is not compatible with the following input formats.

(1) YPbPr/RGB of SDTV

(2) SD-SDI D1

(3) RGB of HDTV

18 to 21 INPUT changeover switch groups
MENU move- switch groups

19. SDI input select/right-shift switch

This switch selects HD-SDI or SD-SDI input (when the option is mounted).

When the MENU or PRESET screen is displayed, this switch serves as the switch for moving the cursor to the right.

21. ANALOG input select/left-shift switch

This switch selects YPbPr or composite input.

When the MENU or PRESET screen is displayed, this switch serves as the switch for moving the cursor to the left.

18, 20. Channel select/Up-Down switch

In both the analog and SDI input modes, this switch performs the switching between ch A and ch B.

When the MENU screen is displayed, this switch serves as the switch for moving the cursor upward or downward. When the PRESET screen is displayed, it serves as the switch for increasing or decreasing data.

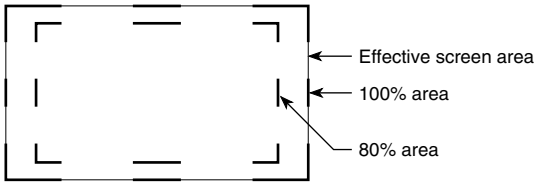
22. SET UP switch

This switch is used for SETUP.

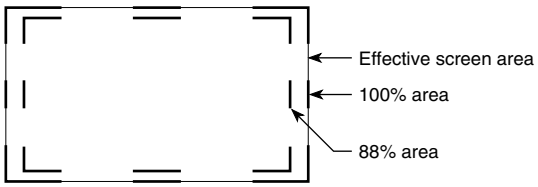
This switch is also used to make a white balance adjustment (BACKGROUND).

The white line that appears in a somewhat upward direction from the screen center at the time of SETUP is a BFS (Beam Feedback System) line. The white balance adjustment is made in the area except this line.

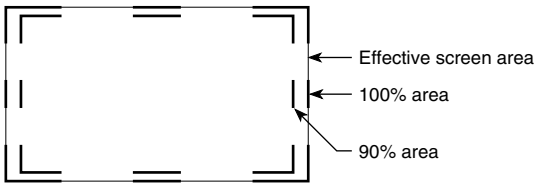
(1) 80% marker



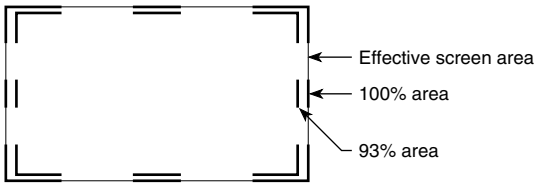
(2) 88% marker



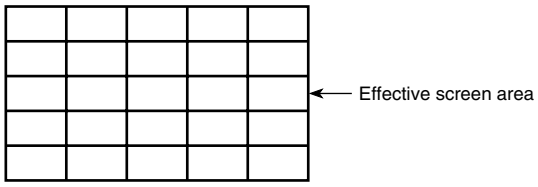
(3) 90% marker



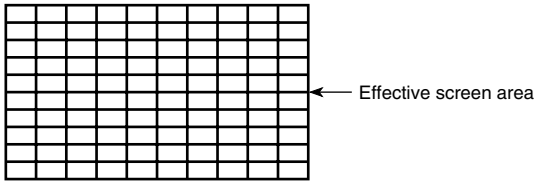
(4) 93% marker



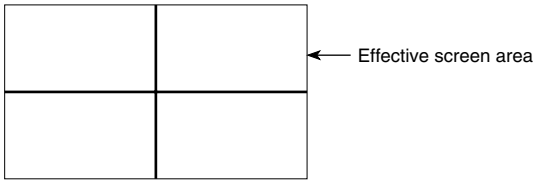
(5) 5-division crosshatch



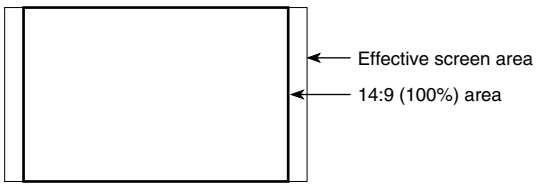
(6) 10-division crosshatch



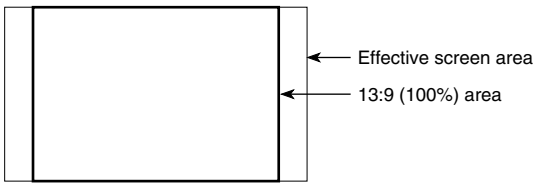
(7) Cross marker



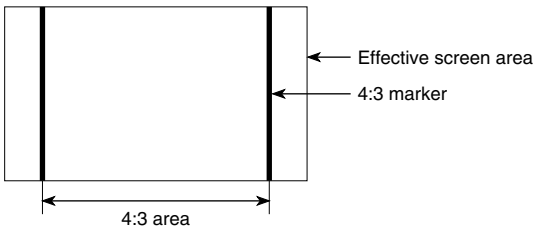
(8) 14:9 (100%) marker



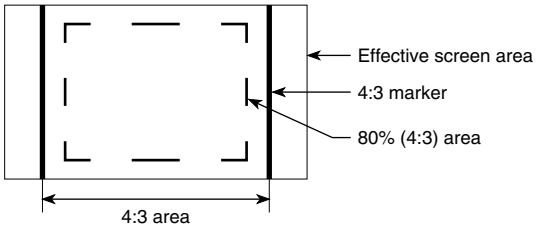
(9) 13:9 (100%) marker



(10) 4:3 marker



(11) 4:3 marker + 80% (4:3)

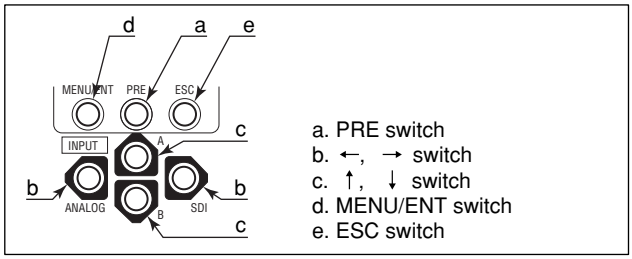


Marker Types

4.2 Description of preset data manipulation

(1) Switch operation during presetting

When the PRE switch is pressed, the switches below function as follows.



a. PRE switch

- Holding this switch down displays the preset screens on page 1 to page 3.
- These screens do not appear even if the PRE switch is pressed while the MENU screen is displayed. Exit from the MENU screen using the ESC switch first and then press the PRE switch.

Page 1

```
<CHANGE PRESET>
*CONT*

   CNT BRT CHR HUE APT
    ■

SELECT→(← →)   STORE→(ENT)
CHANGE→(↑ ↓)   CLEAR→(ESC)
```

Page 2

```
<CHANGE PRESET>
*R.BKG*

 BKG→ R-G-B   G-B ←GAIN
      ■

SELECT→(← →)   STORE→(ENT)
CHANGE→(↑ ↓)   CLEAR→(ESC)
```

Page 3

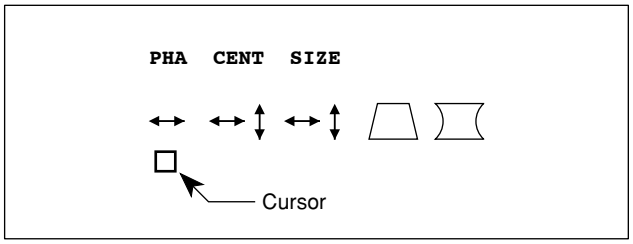
```
<CHANGE PRESET>
*H.PHASE*

   PHA CENT SIZE
    ↔  ↔ ↕  ↔ ↕  ⏢ ⏢
    ■

SELECT→(← →)   STORE→(ENT)
CHANGE→(↑ ↓)   CLEAR→(ESC)
```

b. ◄► switch

- Press this ◄► switch to move the cursor to a preset data item to be changed.



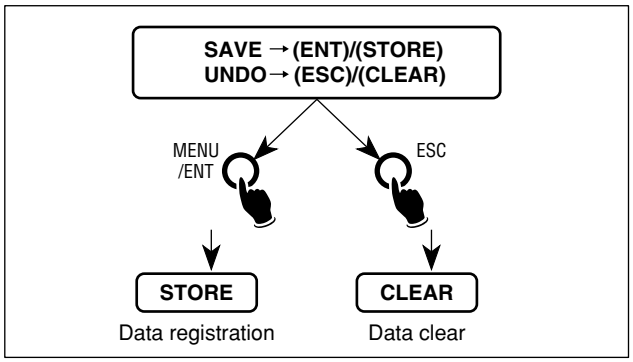
- The data value that appears when the cursor is moved is the current set value.
- The cursor jumps over the following items and moves to the next item.
  APT : In the case where APT is OFF.
  HUE : In the case where NTSC analog/digital composite signal is not selected
- The switching between preset screen pages can also be made using the ◄► switch as well as the PRE switch.

c. ▲▼ switch

- Use this ▲▼ switch to change each preset data at which the cursor points.

d. MENU/ENT switch

- When the MENU/ENT switch is pressed after changes in preset data have been made, the confirmation message is displayed as shown below. To register the data, press the MENU/ENT switch again.
  Pressing the ESC switch here returns to the previous data that is not changed.



- When changed data is registered, "STORE" is displayed on the screen. When data is cleared, "CLEAR" is displayed on the screen.
  When data is not changed, nothing is displayed.

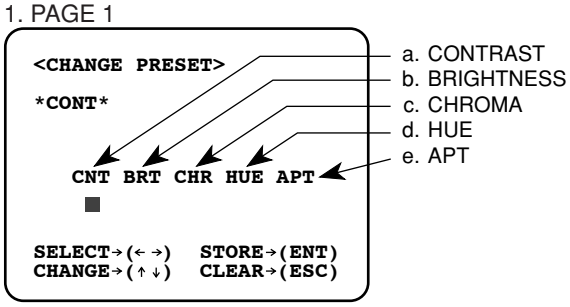
e. ESC switch

- Press this switch to reset the changed data to its previous data that is not changed.

(2) Description of preset data

For the types of individual preset data settings, refer to Chapter 7 "Memo".

1. PAGE 1



a. CONTRAST

Adjust CONTRAST preset data.

For the adjustment procedures, refer to 4.4 (2).

b. BRIGHTNESS

- Adjust BRIGHTNESS preset data.

  For the adjustment procedures, refer to 4.4 (1).

c. CHROMA

- Adjust CHROMA preset data.
- The setting of CHROMA data made when the analog YPbPr signal input of SDTV is selected differs from that of other CHROMA data.

  For the adjustment procedures, refer to 4.4 (4).

d. HUE

- Refer to HUE preset data.

  For the adjustment procedures, refer to 4.4 (4).

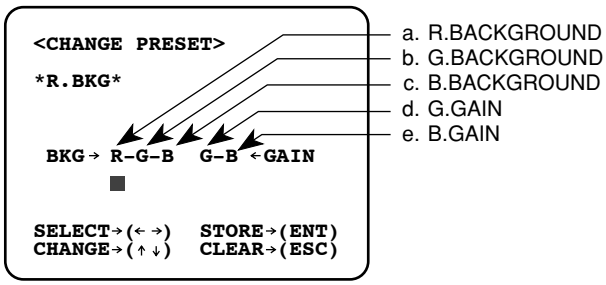
e. APT

- Adjust APERTURE.

⚠ CAUTION

The adjustment cannot be made unless the APT switch on the panel is turned on (LED is lit) before adjustment.

2. PAGE 2



a. R.BACKGROUND

- Adjust the black balance (red component) in low light portions.

  For the adjustment procedures, refer to 4.4. (3).

b. G.BACKGROUND

- Adjust the black balance (green component) in low light portions.

  For the adjustment procedures, refer to 4.4. (3).

c. B.BACKGROUND

- Adjust the black balance (blue component) in low light portions.

  For the adjustment procedures, refer to 4.4. (3).

d. G.GAIN

- Adjust the white balance (green component) in high light portions.

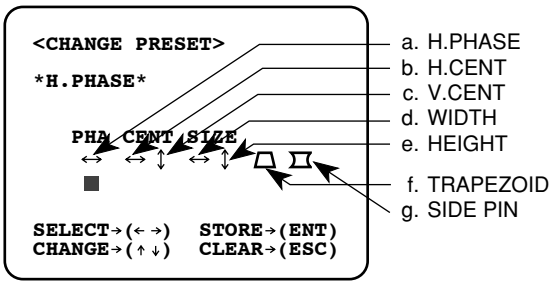
  For the adjustment procedures, refer to 4.4. (3).

e. B.GAIN

- Adjust the white balance (blue component) in high light portions.

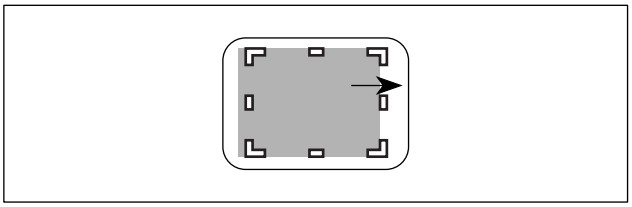
  For the adjustment procedures, refer to 4.4. (3).

3. PAGE 3



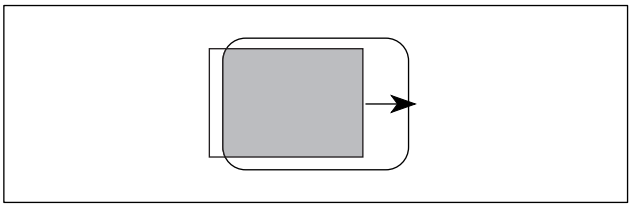
a. H.PHASE

- Adjust the horizontal phase of a video image in each signal input FORMAT.
- The setting is made individually even in the same FORMAT at the time of HD4:3 SCAN only.
- Display the 100% MARKER and make adjustments in such a way that a video image is placed in the 100% frame.
- For the adjustment procedures, refer to 4.4 (7).



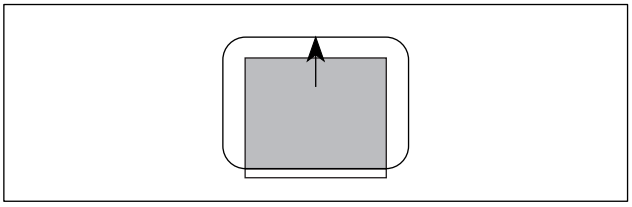
b. H.CENT

- Adjust the horizontal position of the effective screen in each signal input FORMAT.
- The setting is made individually even in the sameFORMAT at the time of HD4:3 SCAN only.
- For the adjustment procedures, refer to 4.4 (7).



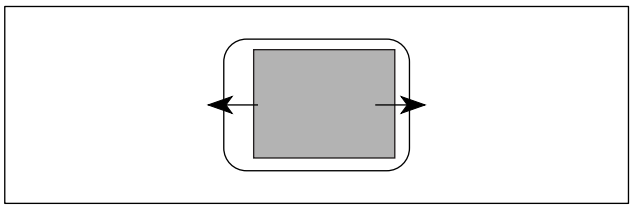
c. V.CENT

- Adjust the vertical position of the effective screen in each signal input FORMAT.
- For the adjustment procedures, refer to 4.4 (7).



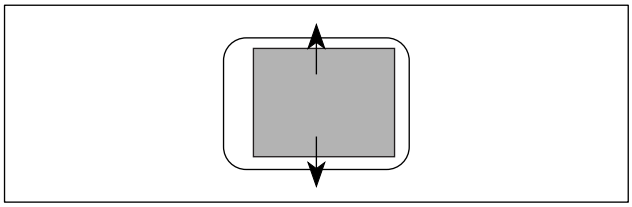
d. WIDTH

- Adjust the width of the effective screen in each signal input FORMAT, each SCAN SIZE and each ASPECT.
- For the adjustment procedures, refer to 4.4 (8).



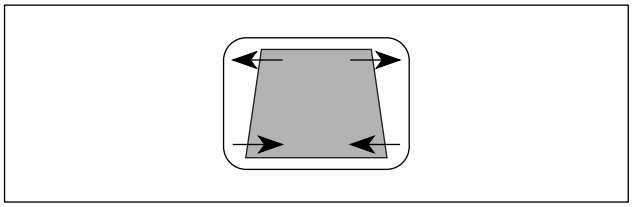
e. HEIGHT

- Adjust the height of the effective screen in each signal input FORMAT, each SCAN SIZE and each ASPECT.
- For the adjustment procedures, refer to 4.4 (8).



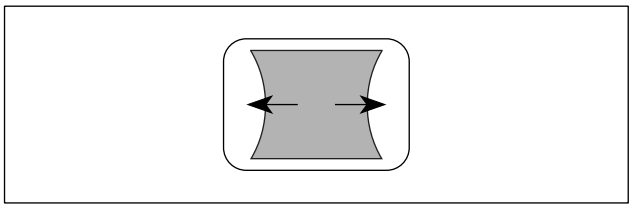
f. TRAPEZOID

- Adjust the TRAPEZOID of the effective screen in each FORMAT.
- For the adjustment procedures, refer to 4.4 (8).



g. SIDE PIN

- Adjust the side pin of the effective screen in each FORMAT
- For the adjustment procedures, refer to 4.4 (8).



4.3 Procedures for registering data in memory or changing data

(1) Registering/changing PRESET data

- Set various preset data on three types of menus that are displayed using the PRE switch.
- The preset data displayed on the page-3 screen must be individually set according to the FORMAT or SCAN SIZE as tabulated in Chapter 7 “Memo”.

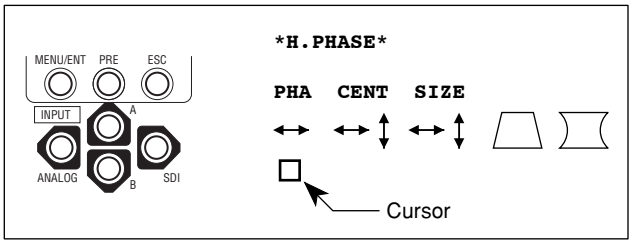
⚠ CAUTION

When changing the preset data displayed on the page-3 screen, data in a different format will be invoked if the switching below is done during data change.

Do not perform the switching below during data change.

- Input signal format switching
- Input channel switching
- Scan size switching
- Aspect switching

(Ex.) Changes in H.PHASE, H.CENT, V.CENT, WIDTH, HEIGHT, TRAPEZOID and SIDE PIN



1. Set SCAN SIZE to UNDER SCAN using the U-SCAN switch and display the 10-division crosshatch using the MARK switch.
2. Press the PRE switch three times to display the menu above.
3. H.PHASE change
   Move the cursor to [PHA] using ◄► and change it using ▲▼.
4. Centering change
   Move the cursor to [CENT] using ◄► (lateral: H.CENT, longitudinal: V.CENT) and make a change using ▲▼ in such a way that the screen is centered in the horizontal and vertical directions.
5. Size change
   Move the cursor to [SIZE] using ◄► (lateral: WIDTH, longitudinal: HEIGHT) and change the width and height using ▲▼.
6. Trapezoid change
   Move the cursor to [⏢] using ◄► and change the trapezoidal distortion using ▲▼.
7. SIDE PIN change
   Move the cursor to [⧈] using ◄► and change SIDE PIN using ▲▼.
8. Data registration
   On completion of data change, pressing the MENU/ENT switch twice registers the changed data.

9. Data clear

Prior to the data registration shown in 8 above, pressing the ESC switch clears the changed data and returns to the previous data that is not changed.

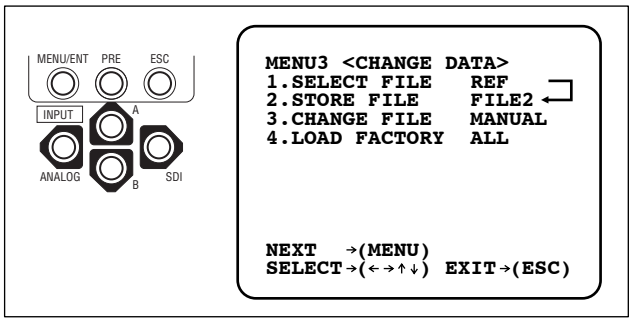
(2) File data registration or change

Nine types of preset data (HUE, CHROMA, BRIGHTNESS, CONTRAST, G/B.GAIN, R/G/B.BACKGROUND) can be registered in files. There are four types of files, REF, FILE1, FILE2 and FILE3. The color temperature below is factory-set in each file.

FILE	Color temperature
REF	6500K
FILE1	6500K
FILE2	9300K
FILE3	User-set

Display the menu-3 screen using the MENU/ENT switch on the front panel.

(Ex.) Transfer of REF (file OFF state) data to FILE2



1. Press the MENU/ENT switch three times to display the menu above.
2. Move the cursor to the right using ◄► and select "REF" using ▲▼.
3. Move the cursor to the left using ◄► and move ▲▼ the cursor in the downward direction.
4. Move the cursor to the right using ◄► and select "FILE2" using ▲▼.
   If "ALL" is selected, data will be transferred to all the files (REF, FILE1, FILE2, FILE3).
5. When ◄► is pressed, the confirmation message is displayed. Press the MENU/ENT switch.

4.4 Adjustment procedures

(Introduction)

- The following adjustments can be made with higher accuracy in the darkest possible use environments for the monitor.
- Read "Registering/changing PRESET data" in 4.3 before proceeding to the adjustments below.

(1) Brightness adjustment

a. Brightness

The BRIGHTNESS is a control for setting a proper black level. The black level must always be adjusted according to the brightness in the monitor use environments so as to avoid too high or too low a black level.

An optional ASP-80 for automatic adjustments is available.

b. Adjustment steps

1. Input signal

   Input a gray scale signal with pluge portion.

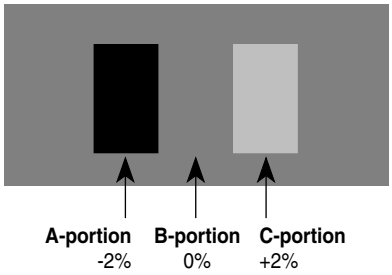


Fig. 4-4-1 pluge portion

2. BRIGHTNESS adjustment

   While looking at the pluge portion (figure above) in the center of the signal, decrease the BRIGHTNESS until just before the brightness of the A-portion (-2%) and that of the B-portion (0%) in the figure are visually indistinguishable from each other.

   Make sure here that slight brightness of the C-portion (+2%) is recognizable. If it is unrecognizable, increase the BRIGHTNESS until the C-portion brightens slightly, since the black level is too low.

(2) Contrast adjustment

a. Contrast

The CONTRAST is factory-set in such a way that video images are monitored optimally.

An optional ASP-80 for automatic adjustments is available.

b. Caution

If the CRT is left excessively brilliant for a long time, the lifetime of it will be shortened. The PRESET value must be therefore adjusted to the value shown below where possible.

c. Adjustment steps

1. Input signal
   Input a window signal (100%).
2. CONTRAST adjustment
   Measure the brightness value of the window portion with a measuring apparatus for brightness and adjust the CONTRAST until 120 cd/m^2 (nit) is obtained.

(3) White balance adjustment

a. White balance

Four types of files for white balance data are available.

- REFERENCE (6500 K)
- FILE1 (6500 K)
- FILE2 (9300 K)
- FILE3 (USER)

For four types of files, color temperature can be set individually. However, a person who is unfamiliar with a color temperature adjustment must make this adjustment using the FILE3 (USER). An optional ASP-80 for automatic adjustments is available.

b. Caution

This monitor employs a beam feedback clamp system that detects and clamps the beam current to stabilize the black level for a long time. Three lines of RGB are therefore displayed in the upper part of CRT (A-portion in Fig. 4-4-2).
If BACKGROUND is decreased excessively to the extent that the B-portion in Fig. 4-4-2 becomes invisible, the line in the A-portion will disappear, disabling the detection of the beam current. As a result, only the video image of a reduced color disappears. Exercise great care when adjusting BACKGROUND.

c. Adjustment procedure 1 (visual adjustment)

1. Input signal
   Input a color bar signal.
2. File setting
   Select a file whose white balance is to be changed.
   Adjust BRIGHTNESS and CONTRAST before white balance adjustments.
3. Setting before BACKGROUND adjustment
   For a color bar signal, place the MONO switch on the front panel in the "ON" position to display the monochrome screen. Then, place the SET UP switch in the "ON" position to display as follows.

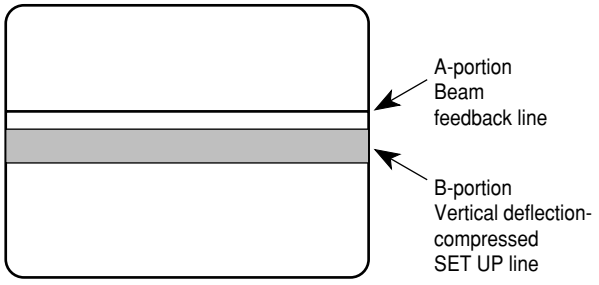


Fig. 4-4-2 SET UP ON-State

4. Initial adjustment of low light
   Produce the screen output of the R (red) signal only using the SCREEN switch on the front panel. Adjust the R.BACKGROUND data to the extent that the red line in the B-portion in the figure shines slightly.
   Similarly, adjust the BACKGROUND data of G (green) and B (blue).
5. Adjustment of high light portion
   Return the SET UP, SCREEN switch to "OFF".
   While looking at the high light portion of the staircase wave, adjust the G.GAIN and B.GAIN until the desired color temperature is obtained.
6. Adjustment of low light portion
   While looking at the low light portion of the staircase wave, adjust the R/G/B BACKGROUND until the desired color temperature is obtained.
7. Since the steps 5 and 6 above interfere with each other, repeat the steps 5 and 6 until the desired color temperature spreads from the low light portion to the high light portion.

d. Adjustment procedure 2 (adjustment with color analyzer)

When adjusting the color temperature of the monitor using a commercially available color analyzer, adjust the GAIN and BACKGROUND of the monitor in such a way that the chromaticity coordinates (x, y) measured with the color analyzer take the values shown in the table below.

CIE chromatic coordinates (x, y) vs. color temperature

Color temperature	x	y
6500K	0.313	0.329
9300K	0.283	0.297

1. Input signal
   Input a window signal.
2. File setting
   Select a file whose white balance is to be changed.
   Adjust BRIGHTNESS and CONTRAST before white balance adjustments.
3. R.BACKGROUND adjustment
   The white balance adjustment is made with respect to red. Therefore, set R.BACKGROUND as follows.
   - Place the SET UP switch on the front panel in the "ON" position to display as shown in Fig. 4-4-2.
   - Turn "ON" R (red) only using the SCREEN switch and adjust the R.BACKGROUND data to the extent that the red line in the B-portion in the figure shines slightly.
   - Return the SET UP/SCREEN switch to "OFF". Do not move the R.BACKGROUND hereafter.

4. CONTRAST MANUAL setting

Place CONTRAST in the MANUAL mode and put the probe of the color analyzer in the center of the window signal displayed on the screen.

In this case, set the brightness value in the MANUAL mode at approximately 5 cd/m^2 (nit) or 1.5 fL in advance.

The brightness value that has been set here in the MANUAL mode changes during white balance adjustments. Check this value at the time of adjustments of the low light portion and set it again when a deviation is found. However, a deviation of ±2cd/cm^2 (±0.5 fL) or so is allowable.

5. Setting of chromaticity coordinates (x, y) in high light state

Place CONTRAST in the PRESET mode and set the chromaticity coordinates (x, y) as follows using G/B GAIN.

- First, adjust the chromaticity coordinate x to the specified value using B.GAIN.
- Then, adjust the chromaticity coordinate y to the specified value using G.GAIN.
- Repeat these adjustments until the chromaticity coordinates (x, y) converge on the specified values, respectively.

When the adjustment of the low light portion is made, the chromaticity coordinates in the high light state deviate. In early stages of adjustments, therefore, make the low light portion adjustment, discussed below, if the chromaticity coordinates have approached the specified values.

6. Setting of chromaticity coordinates (x, y) in low light state

Place CONTRAST in the MANUAL mode and set the chromaticity coordinates (x, y) as follows using G/B BACKGROUND.

- First, adjust the chromaticity coordinate x to the specified value using B.BACKGROUND.
- Then, adjust the chromaticity coordinate y to the specified value using G.BACKGROUND.
- Repeat these adjustments until the chromaticity coordinates (x, y) converge on the specified values, respectively.

When the adjustment of the low light portion is made, the chromaticity coordinates in the high light state deviate. In early stages of adjustments, therefore, repeat the adjustment of the high light portion as shown in the step 5 if the chromaticity coordinates have approached the specified values.

7. Complete the adjustments if the chromaticity coordinates in both the low light state and high light state have converged on the specified values, respectively.

(4) Color balance adjustment

a. Color balance

For YPbPr signals, the color balance is adjusted using CHROMA only. However, an NTSC/PAL decoder module DE-1051 that can accept NTSC composite signal is mounted, the color balance is adjusted by making HUE/CHROMA adjustments.

b. Adjustment procedure (for NTSC composite signal)

1. Input signal

Input SMPTE color bar signal or similar NTSC 75% color bar signal.

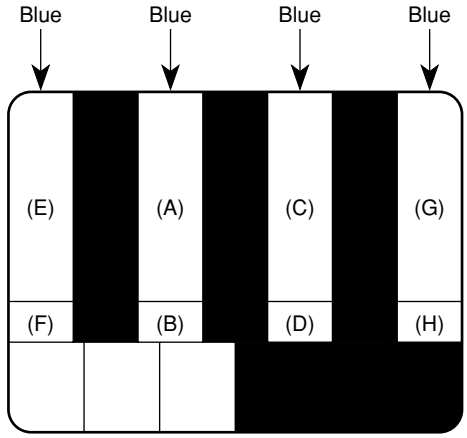


Fig. 4-4-3 NTSC 75% Color Bar Signal

2. Initialization

Allow the blue signal only to appear on the screen using the SCREEN switch. If the screen is too bright, differences in brightness will be hard to distinguish. Darken the surroundings as much as possible and decrease the BRIGHTNESS (in the MANUAL mode) until the blue signal is barely visible so as to make the setting with higher accuracy.

3. HUE adjustment

Adjust HUE until the brightness in the portions A through D in Fig. 4-4-3 is the same. If the same brightness is unattainable, proceed to the next "CHROMA adjustment" after setting the best conditions.

4. CHROMA adjustment

Adjust CHROMA until the brightness in the portions E through H in Fig. 4-4-3 is the same. If the same brightness is unattainable, proceed to the step 3 "HUE adjustment" after setting the best conditions.

5. Repeat adjustments in the steps 3 and 4 until the brightness in A through H is finally the same.

c. Adjustment procedure 2 (for component signals)

1. Input signal

   Apply a 100% color bar signal to the YPbPR signal input.

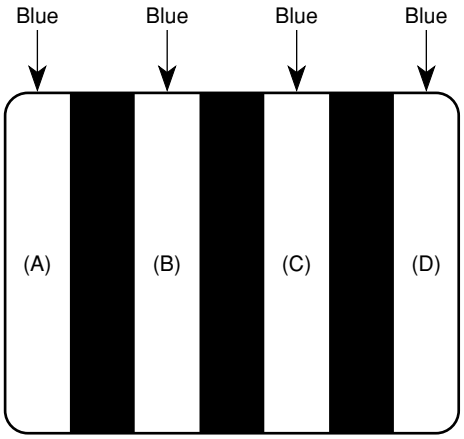


Fig. 4-4-4 100% Color Bar Signal

2. Initialization

   Allow the blue signal only to appear on the screen using the SCREEN switch. If the screen is too bright, differences in brightness will be hard to distinguish. Darken the surroundings as much as possible and decrease the BRIGHTNESS (in the MANUAL mode) until the blue signal is barely visible so as to make the setting with higher accuracy.

3. CHROMA adjustment

   Adjust CHROMA until the brightness in the portions A through D in Fig. 4-4-4 is the same.

   If the input signal is the 75% color bar signal (A-portion = 100% white, BCD portions = 75%), adjust CHROMA until the brightness in the portions B through D in Fig. 4-4-4 is the same.

⚠ CAUTION

For the SDTV analog YPbPr input, CHROMA preset data can be set individually.

(5) Screen center adjustment

a. Screen center

To center the screen, make the following three types of adjustments. Different data can also be set individually in each signal format. "H.PHASE" or "H.CENT" can be set individually in the HDTV format only using 4:3 SCAN.

- H.PHASE

  Adjust the video image position with respect to the start point of the CRT horizontal deflection. This adjustment must be made so as to align the video image and 100% marker phases with each other.

- H.CENT

  Adjust the position of horizontal deflection with respect to the escutcheon (front frame of CRT) frame. The horizontal direction must be adjusted in such a way that the marker is placed in the center of the front frame.

- V.CENT

  Adjust the position of vertical deflection with respect to the escutcheon (front frame of CRT) frame. The vertical direction must be adjusted in such a way that the marker is placed in the center of the front frame.

b. Caution

For H.PHASE or H/V CENT adjustments, separate data is stored in each signal format. Do not perform the switching below during data change.

- Channel switching
- Input signal format change
- Scan switching
- Aspect switching

If any switching above is done, data in a format different from the currently set one will be invoked and the data that is being changed will be cleared. When H.PHASE or H/V CENT data is being changed, therefore, take care not to perform any switching above before the changed data is registered.

c. Adjustment steps

The following adjustment steps are for a certain signal format. Other formats can also be set in the same manner.

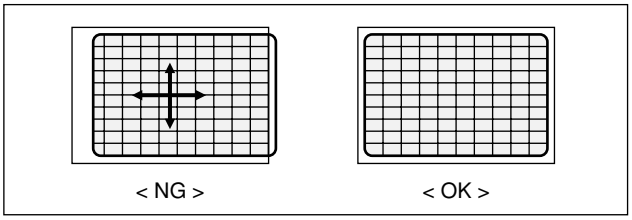
1. Input signal

First, make sure that the MENU1 format setting matches up with a signal format to be changed. For the format setting, refer to 4-5 (3).

For the input signal, apply a signal (monoscope signal, etc.) that displays video image on the whole effective screen area.

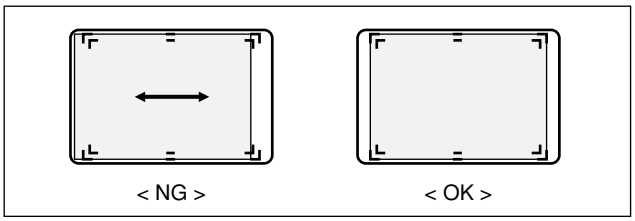
2. H/V CENT adjustment

- Go into the NORMAL SCAN mode using the U-SCAN switch and display the 10-division crosshatch using the MARK switch.
- Adjust the horizontal and vertical directions using H.CENT and V.CENT respectively until the marker is uniform laterally and longitudinally.
- In the adjustment step 3 below, the mode is switched to UNDER SCAN using the U-SCAN switch. Therefore, store the data temporarily by pressing the MANU/ENT switch before proceeding to the step 3.



3. H.PHASE adjustment

- Switch the mode to UNDER SCAN using the U-SCAN switch and display the 100% marker using the MARK switch.
- Go into the H.PHASE adjustment mode using the PRE switch and adjust the phase until the video image frame is aligned with the 100% marker.



4. When continuing the adjustment steps 2 and 3 in different formats, register data temporarily after other data changes are completed and switch the signal format to a different one.

(6) Screen distortion adjustment

a. Screen distortion

There are SIDE PIN and TRAPEZOID designed to adjust screen distortions. Each adjustment can be made in the appropriate adjustment mode selected with the PRE switch. For these two types of preset data, as in the case of adjustment items in (6), different data can be set separately in each signal format.

b. Caution

For SIDE PIN or TRAPEZOID adjustments, as in (6) above, separate data is stored in each signal format. Do not perform the switching below during data change.

- Channel switching
- Input signal format change
- SCAN switching
- ASPECT switching

If any switching above is done, data in a format different from the currently set one will be invoked and the data that is being changed will be cleared. When SIDE PIN or TRAPEZOID data is being changed, therefore, take care not to perform any switching above before the changed data is registered.

c. Adjustment steps

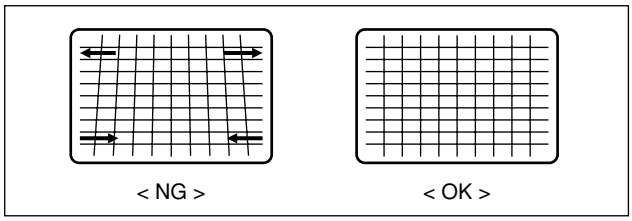
1. Input signal

First, make sure that the MENU1 FORMAT setting matches up with a signal format to be changed. For the format setting, refer to 4-5 (3).

For the input signal, apply a crosshatch signal.

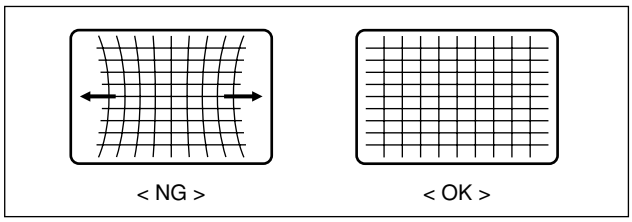
2. Trapezoidal distortion adjustment

Go into the TRAPEZOID adjustment mode using the PRE switch and adjust trapezoidal distortions as shown in the figure below.



3. Side pin adjustment

Go into the SIDE PIN adjustment mode and adjust side pin distortions as shown in the figure below.



4. When continuing the adjustment steps 2 and 3 in different formats, register data temporarily after other data changes are completed and switch the signal format to a different one.

(7) Screen size adjustment

a. Screen size

Screen sizes are set through adjustments of HEIGHT and WIDTH. For these two pieces of data, the following four types (three types for HDTV) of size settings are available in a single signal format. Also, there is individual data for files that can be input to the following types.

- U-SCAN switch
  NORMAL SCAN, UNDER SCAN
- ASPECT switch
  4:3 SCAN, 16:9 SCAN

b. Caution

For HEIGHT or WIDTH adjustments, separate data is stored in each signal format. Do not perform the switching below during data change.

- Channel switching
- Input signal format change
- SCAN switching
- ASPECT switching

If any switching above is done, data in a format different from the currently set one will be invoked and the data that is being changed will be cleared. When HEIGHT or WIDTH data is being changed, therefore, take care not to perform any switching above before the changed data is registered.

The following adjustment steps are for a certain signal format. Other formats can also be set in the same manner. Prior to this adjustment, make the adjustments in (6) and (7).

c. Adjustment procedure 1 (HDTV 16:9 NORMAL SCAN)

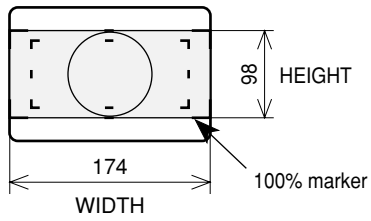
1. Input signal
   - Monoscope input for HDTV is recommended.
2. HEIGHT, WIDTH adjustments
   - Select 16:9 using the ASPECT switch and NORMAL SCAN using the U-SCAN switch.
   - Display the 100% marker using the MARK switch.
   - Adjust WIDTH and HEIGHT until the 100% marker is sized to the values shown in Table C-1-1.
   - When continuing adjustments of different scan sizes, be sure to write the data obtained so far into memory beforehand by pressing the MENU/ENT switch.

HDTV 16:9 NORMAL SCAN Size

ASPECT	SCAN	HEIGHT	WIDTH
16 : 9	NORMAL	98 mm	174 mm*1

*1 Escutcheon front frame contact size

Table C-1-1



<HDTV 16:9 NORMAL Size>

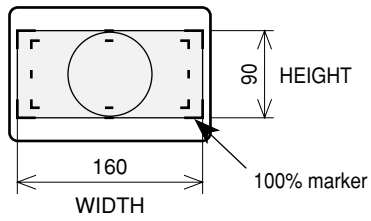
d. Adjustment procedure (HDTV 16:9 UNDER SCAN)

1. Input signal
   Same as “c” above
2. HEIGHT, WIDTH adjustments
   - Select 16:9 using the ASPECT switch and NORMAL SCAN using the U-SCAN switch.
   - Display the 100% marker using the MARK switch.
   - Adjust WIDTH and HEIGHT until the 100% marker is sized to the values shown in Table d-1-1.
   - When continuing adjustments of different scan sizes, be sure to write the data obtained so far into memory beforehand by pressing the MENU/ENT switch.

HDTV 16:9 UNDER SCAN Size

ASPECT	SCAN	HEIGHT	WIDTH
16 : 9	UNDER	90 mm	160 mm

Table d-1-1



<HDTV 16:9 UNDER Size>

e. Adjustment procedure 3 (HDTV 4:3 SCAN)

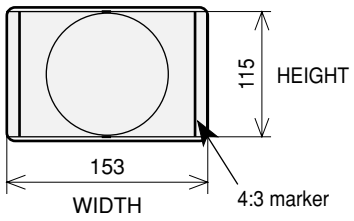
For the HDTV 4:3 scan, use the 4:3 marker.

1. Input signal
   Same as “b” above
2. HEIGHT, WIDTH adjustments
   - Select 4:3 using the ASPECT switch.
   - Display the 4:3 marker using the MARK switch.
   - Adjust WIDTH and HEIGHT until the 4:3 marker is sized to the values shown in Table e-1-1.
   - When continuing adjustments of different scan sizes, be sure to write the data obtained so far into memory beforehand by pressing the MENU/ENT switch.

HDTV 4:3 SCAN Size

ASPECT	SCAN	HEIGHT	WIDTH
4 : 3	---	115 mm	153 mm

Table e-1-1



<HDTV 4:3 Scan Size>

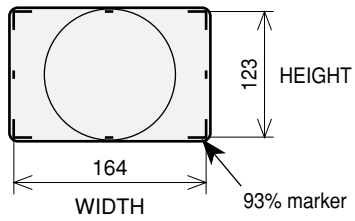
f. Adjustment procedure 4
(SDTV 4:3 NORMAL, 16:9 NORMAL scan)

1. Input signal
   - Monoscope for SDTV is recommended.
2. HEIGHT, WIDTH adjustments
   - First, select 4:3 using the ASPECT switch and then NORMAL-SCAN using the U-SCAN switch.
   - Display the 93% marker using the MARK switch.
   - Adjust WIDTH and HEIGHT until the 93% marker is sized to the values shown in Table f-1-1.
   - When continuing adjustments of different scan sizes, be sure to write the data obtained so far into memory beforehand by pressing the MENU/ENT switch.

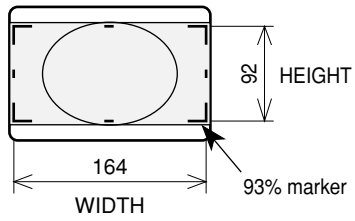
SDTV 4:3 16:9 NORMAL SCAN Size

ASPECT	SCAN	HEIGHT	WIDTH
4 : 3	NORMAL	123 mm	164 mm
16 : 9	NORMAL	92 mm	164 mm

Table f-1-1



<SDTV 4:3 NORMAL Size>



<SDTV 16:9 NORMAL Size>

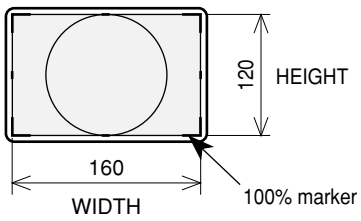
g. Adjustment procedure 5
(SDTV 4:3 UNDER, 16:9 UNDER scan)

1. Input signal
   - Monoscope for SDTV is recommended.
2. HEIGHT, WIDTH adjustments
   - First, select 4:3 using the ASPECT switch and then UNDER-SCAN using the U-SCAN switch.
   - Display the 100% marker using the MARK switch.
   - Adjust WIDTH and HEIGHT until the 100% marker is sized to the values shown in Table g-1-1.
   - When continuing adjustments of different scan sizes, be sure to write the data obtained so far into memory beforehand by pressing the MENU/ENT switch.

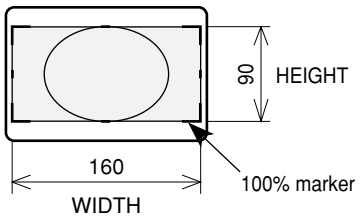
SDTV 4:3 16:9 UNDER SCAN Size

ASPECT	SCAN	HEIGHT	WIDTH
4 : 3	NORMAL	120 mm	160 mm
16 : 9	NORMAL	90 mm	160 mm

Table g-1-1



<SDTV 4:3 UNDER Size>



<SDTV 16:9 UNDER Size>

4.5 Menu functions

(1) Menu list

All the functions are executable on menu screens.

Table 4-5-1 Menu List

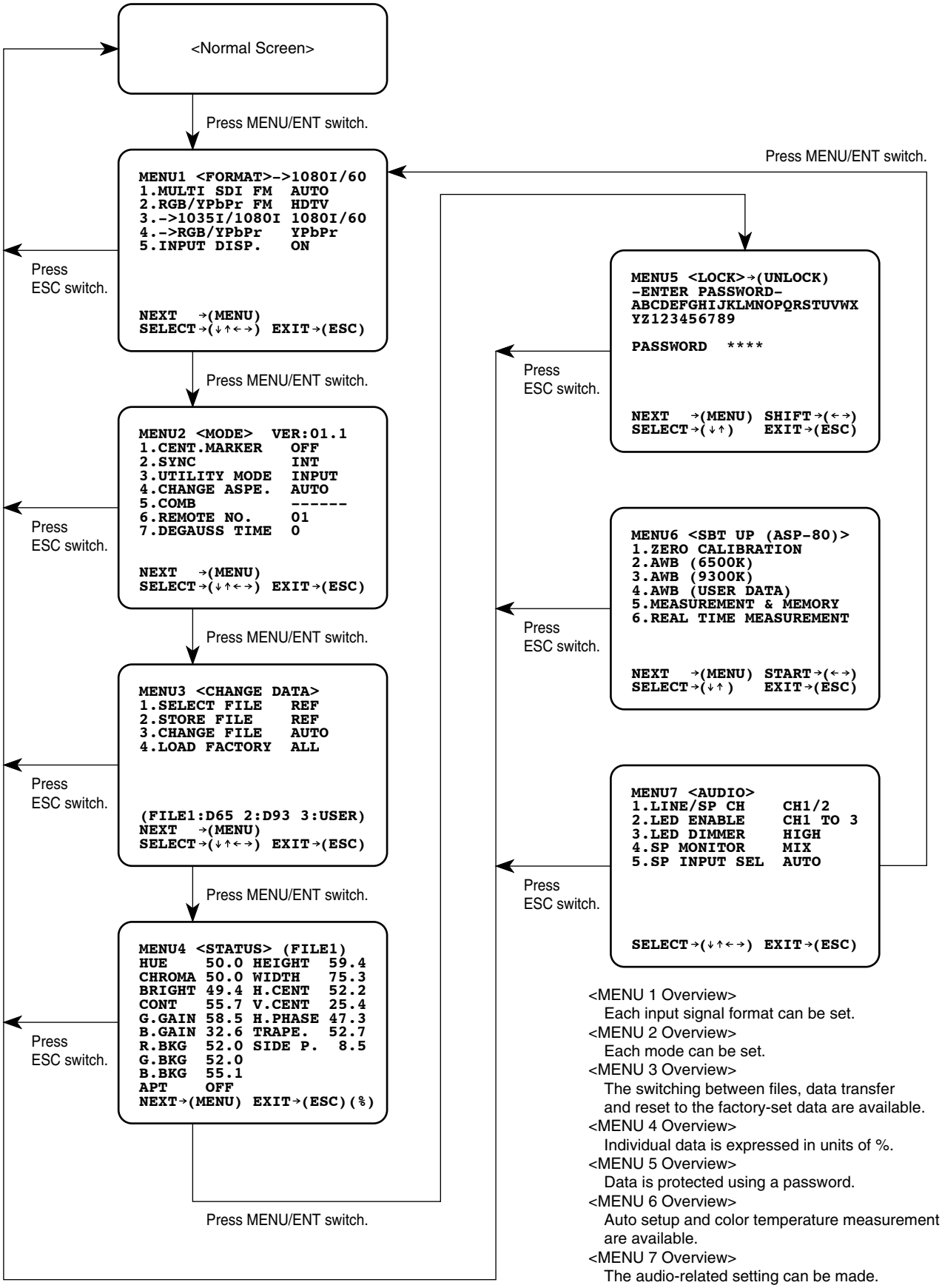
Page	Contents	Initial value	Description
MENU1 <FORMAT>	1. MULTI-SDI FM*1	AUTO	Sets an HD-SDI input format (for earlier version DKH-1051 only).
	2. RGB/YPbPr FM	HDTV	Sets an RGB/YPbPr input format.
	3. →1035i/1080i	1080i/60	Sets 1035i/60 or 1080i/60 for the RGB/YPbPr input.
	4. →RGB/YPbPr	YPbPr	Sets RGB or YPbPr input.
	5. INPUT DISP.	ON	At the time of channel switching, specifies whether to display the set channel and the input signal format on CRT.
MENU2 <MODE>	1. CENT. MARKER	OFF	At the time of the safe marker output, specifies whether to allow the cross marker to appear in the center of CRT.
	2. SYNC	INT	Sets SYNC INT/EXT.
	3. UTILITY MODE	INPUT	Specifies a function to be allotted to the UTILITY switch.
	4. CHANGE ASPE.	AUTO	Selects the automatic aspect change mode by means of a signal in a format and channel or the aspect fixed mode.
	5. COMB	- - - - - *2	Turns ON/OFF for COMB filter.
	6. REMOTE NO.	01	Sets a serial remote ID number
	7. DEGAUSS TIME	0	Sets the degauss circuit actuation timing when the monitor is started.
MENU3 <CHANGE DATA>	1. SELECT FILE	REF	Selects a white balance (REF, FILE1, FILE2, FILE3).
	2. STORE FILE	ALL	Transfers white balance data between files.
	3. CHANGE FILE	AUTO	When a different white balance is set for each input channel, specifies whether to memorize it.
	4. LOAD FACTORY	ALL	Invokes the factory-made settings.
MENU4 <STATUS>	1. STATUS		Displays each preset data value.
MENU5 <LOCK>-<UNLOCK>	1. PASSWORD LOCK	UNLOCK	Protects preset data using a password.
MENU6 <SET UP (ASP-80)>	1. ZERO CALIBRATION		Calibrates the ASP-80 black level.
	2. AWB (6500K)		Provides a 6500K setup using ASP-80.
	3. AWB (9300K)		Provides a 9300K setup using ASP-80.
	4. AWB (USER DATA)		Provides a setup for user-set x-y coordinates and brightness.
	5. MEASUREMENT & MEMORY		Puts user-set white balance data into the monitor as USER DATA by reading the xy coordinates and brightness through the use of ASP-80.
	6. REAL TIME MEASUREMENT		Measures color temperatures or brightness of the monitor in real time using ASP-80.
MENU7 <AUDIO>	1. LINE/SP CH	CH 1, 2	Specifies a pair channel output of the embedded audio outputs that is to be produced.
	2. LED ENABLE	CH 1 to 8	Specifies whether to display the audio level meter (DAM-1054, DAM-1058).
	3. LED DIMMER	HIGH	Sets the brightness of the audio level meter (DAM-1054, DAM-1058) in four steps.
	4. SP MONITOR	MIX	Specifies how to produce the pair channel output that is set in 1 from a single speaker.
	5. SP INPUT SEL	AUTO	When DKM-1051AV/AVD is mounted, specifies whether to embed the sound from the speaker built into the monitor or whether to input it from the rear connector.

*1 : For DKM-1051: MULTI SDI FM
For DKH-1051: HD SDI FM

*2 : ----- (for no DE-1051), ON (for DE-1051)

(2) Menu operational flowchart

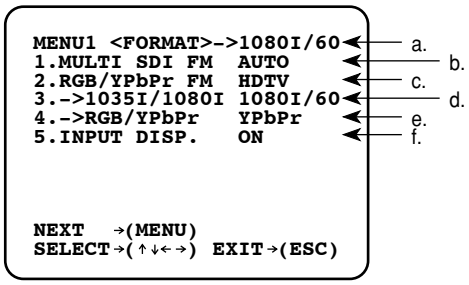
The switching between menus is done as follows when the MENU/ENT switch is pressed.



<MENU 1 Overview>
Each input signal format can be set.
<MENU 2 Overview>
Each mode can be set.
<MENU 3 Overview>
The switching between files, data transfer and reset to the factory-set data are available.
<MENU 4 Overview>
Individual data is expressed in units of %.
<MENU 5 Overview>
Data is protected using a password.
<MENU 6 Overview>
Auto setup and color temperature measurement are available.
<MENU 7 Overview>
The audio-related setting can be made.

(3) Description of MENU 1 functions

The vertical deflection frequency "/60" shown on the menu includes both "60 Hz" and "59.94 Hz".



a. Displays a selected signal format.
b. Set an HD-SDI input format.
c. Set an RGB/YPbPr input format.
d. Set 1035i/60 or 1080i/60 for the RGB/YPbPr input.
e. Set RGB or YPbPr for the RGB/YPbPr input.
f. Displays a signal input format.

a. Displays a selected signal format

The currently selected signal format is displayed.

b. Set an HD-SDI input format

• For DKM-1051

Automatic discrimination takes place and therefore no setting is required.

• For DKH-1051

Each HD-SDI input format must be set.

c. Set an RGB/YPbPr input format

HD or SD must be set for the RGB/YPbPr input.

- For HD, 1035i/60, 1080i/60 and 720p/60 are automatically discriminated from one another to set up the monitor operation. However, 1035i and 1080i must be discriminated from each other in "d" below.
- For SD, 525i/60 and 625i/50 are automatically discriminated from one the other to set up the monitor operation.

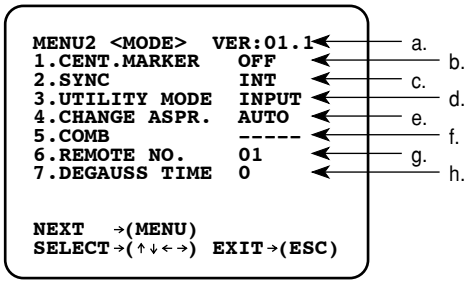
d. Set 1035i/60 or 1080i/60 for the RGB/YPbPr input

The input signal 1035i or 1080i/60 is set for the RGB/YPbPr input.

e. Set RGB or YPbPr for the RGB/YPbPr input

The input signal RGB or YPbPr is set for the RGB/YPbPr input. For an optional DCH-1051, ch A/B can be set individually.

(4) Description of MENU 2 functions

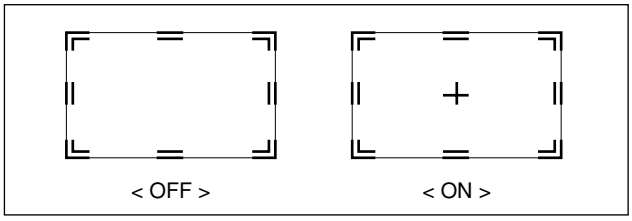


a. Displays a firmware version.
b. Specify whether to display the MARKER center cross.
c. Set SYNC INT/EXT.
d. Specify a function to be allotted to the UTILITY switch.
e. Specify the automatic or fixed mode for the ASPECT setting.
f. For DE-1051, turns ON/OFF the COMB filter.
g. Set a serial remote ID number.
h. Set the DEGAUSS ON timing at power-on.

a. Displays a firmware version

b. Specify whether to display the MARKER center cross

The display of the MARKER center cross is turned ON/OFF. When "ON" is set, the center MARKER is displayed as shown in the figure below. The factory-set mode is OFF.



c. Set SYNC INT/EXT

For the synchronizing signal, external sync or internal sync is used.

d. Specify a function to be allotted to the UTILITY switch

Functions are allotted to the UTILITY switch on the front panel.

• INPUT

Switching between input signals is done.

Switching takes place as shown below each time this switch is pressed.

(Ex.) For DKM-1051 or DE-1051:

YPbPr ch A →MULTI SDI ch A →MULTI SDI ch B → DECO ch A → DECO ch B → YPbPr ch A

• COMB

The COMB ON/OFF switching can be done.

• SYNC

The SYNC INT/EXT switching can be done.

• FILE

The switching between REF. FILE1 to 3 can be done.

• AUDIO CH

The switching between DKM-1051AV analog 2 ch outputs or between voice channel (ch 1/2, 3/4, 5/6, 7/8) outputs from the speaker can be done.

e. Specify the automatic or fixed mode for the aspect setting

- AUTO

  Aspects are changed automatically using a signal in a format and channel.

- MANUAL

  Aspect switching is fixed. This setting is made to perform channel switching and aspect switching in the parallel remote mode.

f. For DE-1051, turns ON/OFF the COMB filter

The COMB filter built into DE-1051 is turned ON/OFF.

g. Set a serial remote ID number

To remote-control monitors using a serial remote controller (SRC-301A), an ID number is set for each monitor.

This setting makes it possible to remote-control individual monitors differently or remote-control all the monitors in the same way simultaneously.

The use of a serial remote controller (SRC-301A) allows you to remote-control up to 99 loop-through-connected Ikegami-made monitors (17/18/20/30/80/90/HTM series) by setting an ID number for them, respectively.

h. Set the DEGAUSS ON timing at power-on

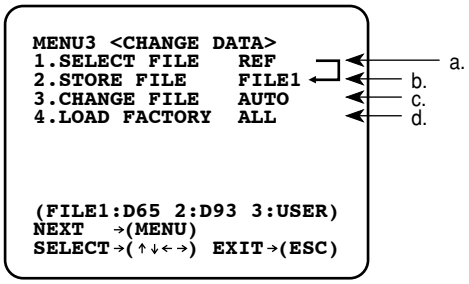
The start time of the degauss function, which is automatically enabled at power-on, is set in 10 steps of 0 to 9. This grouped (0 to 9) setting minimizes the rush current that flows when the power to the system is turned on simultaneously.

When the timing is set at "0", the degauss function is enabled 10 seconds after the power is turned on. An increment of "1" in the set value delays the start time by 0.5 second.

The table below shows approximate start time.

Set value	Start time	Set value	Start time
0	10.0 sec	5	12.5 sec
1	10.5 sec	6	13.0 sec
2	11.0 sec	7	13.5 sec
3	11.5 sec	8	14.0 sec
4	12.0 sec	9	14.5 sec

(5) Description of MENU 3 functions



a. Select a file.
b. Select a transfer destination file.
c. Set a file for each channel.
d. Rest to factory-set data.

a. Select a file

Data stored on REFERENCE, FILE1, FILE2 or FILE3 is selected. Each files contains the following nine types of data.

- HUE
- CHROMA
- BRIGHTNESS
- CONTRAST
- G.GAIN
- B.GAIN
- R.BACKGROUND
- G.BACKGROUND
- B.BACKGROUND

b. Select a transfer destination file

The data contents of a file shown in "a" are transferred to a file set in "b". When ALL is selected, the data contents of a file set in "a" are transferred to all the files (REFERENCE, FILE1, FILE2, FILE3).

The following color temperatures are factory-set.

FILE	Color temperature
REF.	6500K
FILE1	6500K
FILE2	9300K
FILE3*	6500K

c. Set a file for each channel

If AUTO is selected when a different file is set for each input channel, each set file is invoked for each channel.

If MANUAL is selected, a file set in "a" (SELECT FILE) is forcedly fixed even when a channel change is made.

d. Rest to factory-set data

This function is used for the reset to the factory-set data.

The choices of ALL , PRESET and MENU & SW are available.

- MENU & SW

  Items set on a menu and SW state are reset to the factory-set state.

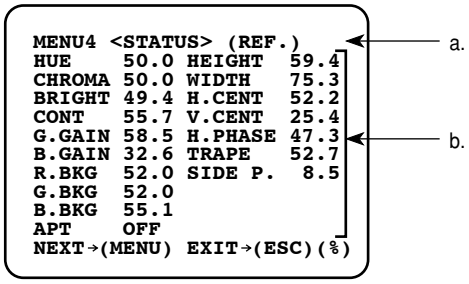
- PRESET

  The PRESET (CONT, BRI, CHROMA, HUE, APERTURE, R BKG, G BKG, B BKG, G GAIN, B GAIN, PHASE, H CENT, V CENT, H SIZE, V SIZE, TRAPE, PIN) data on all files and in all formats are reset.

- ALL

  Both MENU & SW and PRESET are reset.

(6) Description of MENU 4 functions



a. Displays the current file.
b. Displays data.

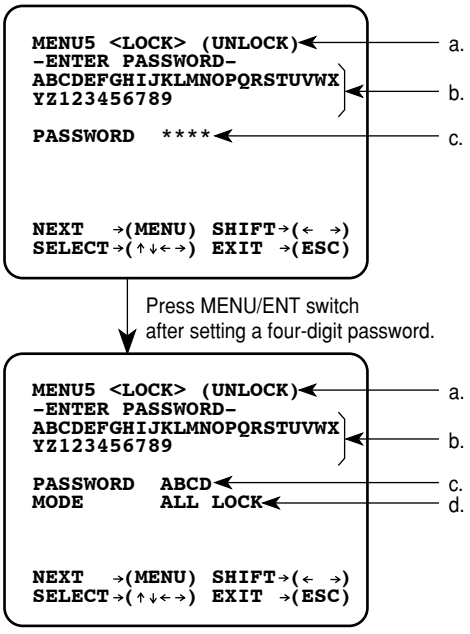
a. Displays the current file

The currently selected file is displayed.

b. Displays data

Preset data calculated down to the first decimal place is displayed as percentage.

(7) Description of MENU 5 functions



Press MENU/ENT switch
after setting a four-digit password.

a. Displays the state of set LOCK.
b. Password choices
c. Input a password.
d. Set the LOCK state.

a. Displays the state of set LOCK

- UNLOCK

  It is possible to change all data..

- ALL LOCK

  It is impossible to change or switch any preset data.

- PRESET & FILE LOCK

  It is possible to do switching between files only.

b. Password choices

To set a password, select characters and numerals from among these alphanumerics using the ↑↓ switches.

c. Input a password

To set the LOCK state to ALL LOCK or PRESET & FILE or cancel the LOCK (UNLOCK), select arbitrary characters and numerals from among the password choices to create a four-digit password and input the password here.

⚠ CAUTION

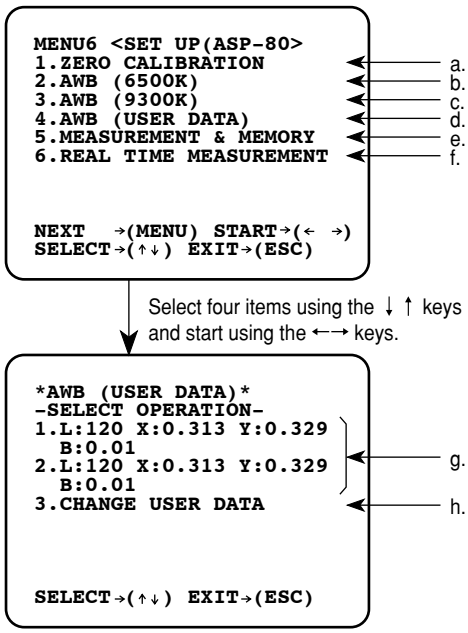
If you forget your password, contact the nearest Ikegami dealer. We have a LOCK cancel password.

d. Set the LOCK state

When the MENU/ENT switch is pressed after a password is inputted, the LOCK state selection field blinks and a change can be made there using the ↑↓ switches. After setting, execute the selected LOCK state using the MENU/ENT switch. The use of the ESC switch returns to the previous state.

(8) Description of MENU 6 functions

* For details of operation, refer to the operation manual for ASP-80.



Select four items using the ↓ ↑ keys
and start using the ←→ keys.

a. Zero calibration
b. Auto setup 6500K
c. Auto setup 9300K
d. Auto setup user data
e. Measure and memorize white balance data.
f. Measure white balance data.
g. User-set data
h. Change user data.

a. Zero calibration

Make a zero-adjustment of the auto setup probe. The calibration must be executed without exposing the light-receptive spot to light.

The calibration cannot be executed if the auto setup probe (ASP-80) is not connected.

Also, if the light-receptive spot is exposed to light, “ERROR: TOO LIGHT” will be displayed. Ensure that it is not exposed to light.

b. Auto setup 6500K

Set up at 6500K.

The execution of this setup requires the 100% window signal.

c. Auto setup 9300K

Set up at 9300K.

The execution of this setup requires the 100% window signal.

d. Auto setup user data

Give CIE color temperature coordinates, preset brightness value and black level value and set up using this data.

The execution of this setup requires the 100% window signal.

For coordinates, refer to the instruction manual for ASP-80.

This data can be changed using CHANGE USER DATA. After the selection of the MENU 6-4 item, pressing the "←→" keys allows the user data menu to appear.

Allowable setting ranges are as follows.

Brightness: 10 to 190 cd/m^2

Raster brightness: 0.01 to 0.99 cd/m^2

Color temperature (x, y): 0.250 to 0.380 cd/m^2

e. Measure and memorize white balance data

Measure color temperature data, brightness and raster brightness that were set in the field.

The measured data can be stored as USER DATA.

f. Measure white balance data

Use this function to measure the brightness or color temperature of any monitor other than this machine. It makes measurement in real time and therefore can also serve as an analyzer for color temperature adjustments.

g. User-set data

User-set data is displayed here.

Memorized here are the factory-set color temperature 6500K, brightness 120 cd/m^{2}and raster brightness 0.01 cd/m^2.

h. Change user data

Change user data using this menu.

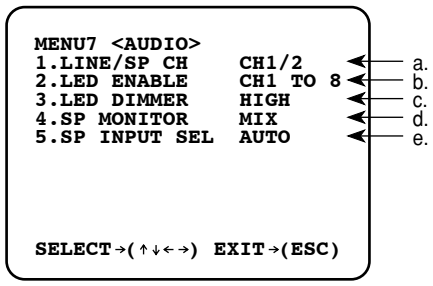
Allowable change ranges are as follows.

Brightness (L): 10 to 190 cd/m^2

Raster brightness (B): 0.01 to 0.99 cd/m^2

Color temperature (x, y): 0.250 to 0.380 cd/m^2

(9) Description of MENU 7 functions



a. Select an audio pair channel.
b. Specify whether to display the audio level meter.
c. Set the brightness of the audio level meter.
d. Set the audio monitor output.
e. Set an audio input signal.

a. Select audio pair channels

Select the voices from the embedded analog 2-CH output of DKM-1051AV or DKM-1051AVD to the speaker built into HTM-1005R from among CH1/2, CH3/4, CH5/6 and CH7/8.

b. Specify whether to display the audio level meter

Specify whether to display the audio level meter DAM-1054 or 1058 on CH1 to 2/1 to 4/1 to 6/1 to 8.

c. Set the brightness of the audio level meter

Set the brightness of the LED on the audio level meter DAM-1054/1058 in steps of OFF, LOW, MIDDLE and HIGH.

d. Set the audio monitor output

Specify how to produce the output of an audio pair channel set in "a" from the speaker.

ODD: An odd channel output only is produced from the speaker

EVEN: An even channel output only is produced from the speaker.

MIX: A mono output is produced with ODD and EVEN channel outputs mixed together.

e. Set an audio input signal.

When an embedded audio-compatible option is mounted, set the standard pin connector audio input or embedded voice for the source from which voices are to be output from the speaker.

AUTO: When an SDI channel is selected, the voice of the embedded audio input is outputted from the speaker. When an analog channel is selected, the voice of the analog input is outputted from the speaker.

EMBEDDED: The voice output from the speaker is limited to the voice of the embedded audio input irrespective of channel selection.

ANALOG: The voice output from the speaker is limited to the voice of the analog audio input irrespective of channel selection.

4.6 Description of screen messages

Message	Description
ALL LOCK	This message will appear if you make an attempt to change preset data (WIDTH, HEIGHT, etc.) or do the switching between files (FILE1, FILE2, etc.) when "MENU 5 <LOCK> → (ALL LOCK)" is displayed on the top of the MENU 5 screen that is selected using the MENU/ENT switch. To cope with it, enter the password on MENU 5, select UNLOCK and change data.
PRESET & FILE LOCK	This message will appear if you make an attempt to change preset data (WIDTH, HEIGHT, etc.) when "MENU 5 <LOCK> → (PRE8 FILE)" is displayed on the top of the MENU 5 screen that is selected using the MENU/ENT switch. To cope with it, enter the password on MENU 5, select UNLOCK and change data.
MENU → OFF	This message will appear if the "PRE" switch on the front panel is pressed when a menu is displayed. When a menu is displayed, no preset data can be changed. Exit from the menu by pressing the ESC button before performing any operation.
NO OPERATION	This message will appear if misoperations are performed (for example, APERTURE is turned on when SD signal is YPbPr-input.) or if there is no relevant function (for example, the 4:3 scan mode is selected and the NORMAL/U-SCAN switch is operated when HD signal is monitored.).
ENTER CORRECT PASSWORD	This message will appear if the preset password disagrees with the entered password when the LOCK state is displayed as <ALL LOCK> or <PRE & FILE> on the MENU 5 screen that is selected using the MENU/ENT switch.
STORE DATA CLEAR DATA	With CHANGE PRESET selected using the PRE switch, if the MENU/ENT switch is pressed after any preset data is changed, the changed data will be written into memory. Also, if the changed data is discarded by pressing the ESC switch before the MENU/ENT switch is pressed, "CLEAR DATA" will blink three times instead of "STORE DATA".
CHANGE BATTERY	The mark CHANGE BATTERY will appear (at power-on) if the voltage of the lithium battery built into the VIDEO PROCESS BOARD that backs up data becomes insufficient. If this message is displayed, contact the nearest Ikegami dealer.
WARNING: FAN STOPPED!! <POWER OFF PLEASE>	This warning will appear if a stop of either the rear FAN or the internal FAN is detected. The power pilot lamp on the front panel blinks eight times in two seconds and remains off for one second repeatedly at the same time this warning is issued. This warning is displayed for two minutes. If the power supply is not turned off during this period, the protection circuit will work to shut off the high voltage output, video output, etc. If this warning is given, turn off the power and contact the nearest Ikegami dealer.

5. Installation and removal of options

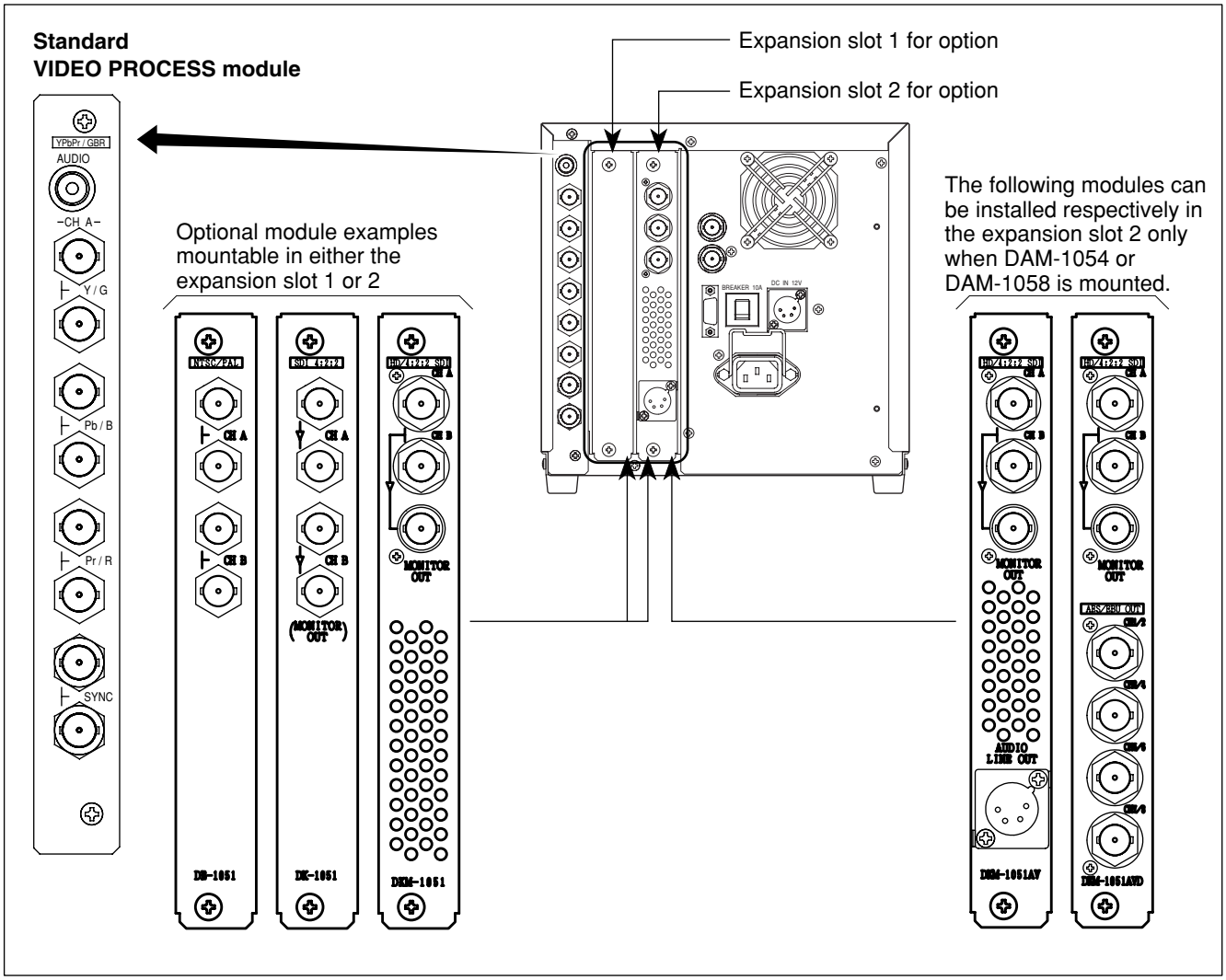
5.1 Installation procedures, installation examples and removal procedures for optional modules

1. Installation procedures and installation examples

- Be sure to turn off the power before installing any optional module.
  The installation of any optional module with the power turned on may result in unexpected trouble or electric shock.
- The VIDEO PROCESS module is mounted as standard. It is therefore impossible to install any other module in that location.
- Optional modules must be inserted into the slots located beside the VIDEO PROCESS module.
- Up to two optional modules can be added to this machine.
- For the combinations of simultaneously mountable modules, refer to "List of Optional Module Combinations"
- DKM-1051AV or DKM-1051AVD can be installed in "Expansion slot 2 for option" only when DAM-1054 or DAM-1058 is mounted.
- DE-1051, DK-1051 or DKM-1051 can be installed in either the expansion slot 1 or 2 for option.
- When installing an optional module, remove the blank panel and insert the optional module.
  The mounting screw located in the upper/lower part of an optional module must be fastened tightly to prevent imperfect contact.

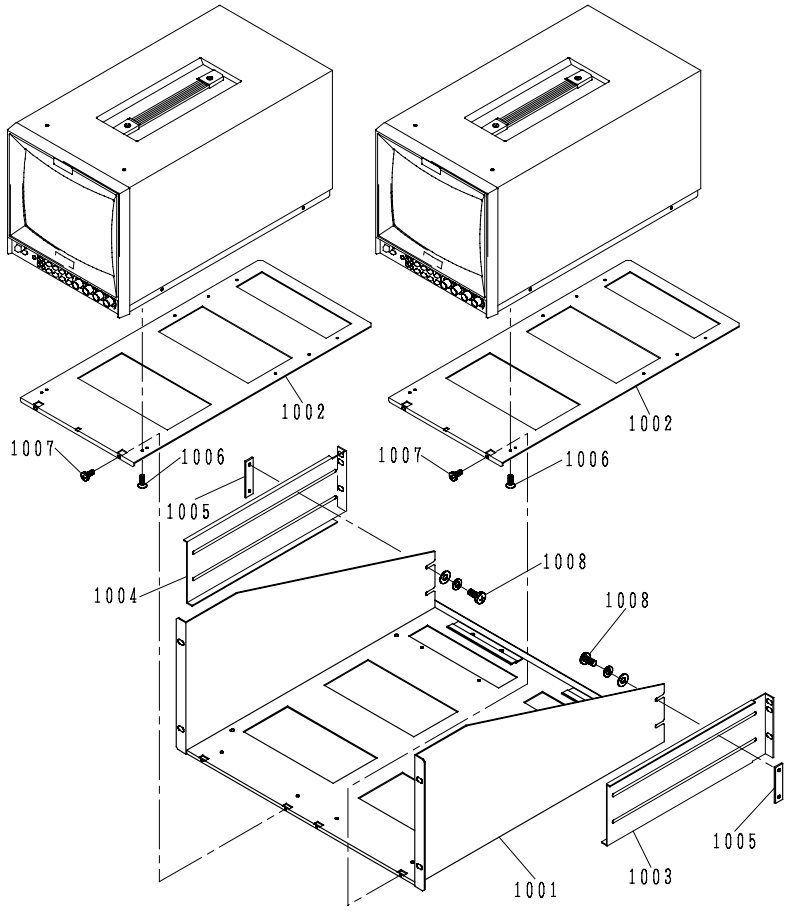
2. Removal

- Be sure to turn off the power before removing any optional module.
  Installation with the power turned on may cause unexpected trouble.



6. Rack mount installation drawing

(1) XRM-744 installation drawing

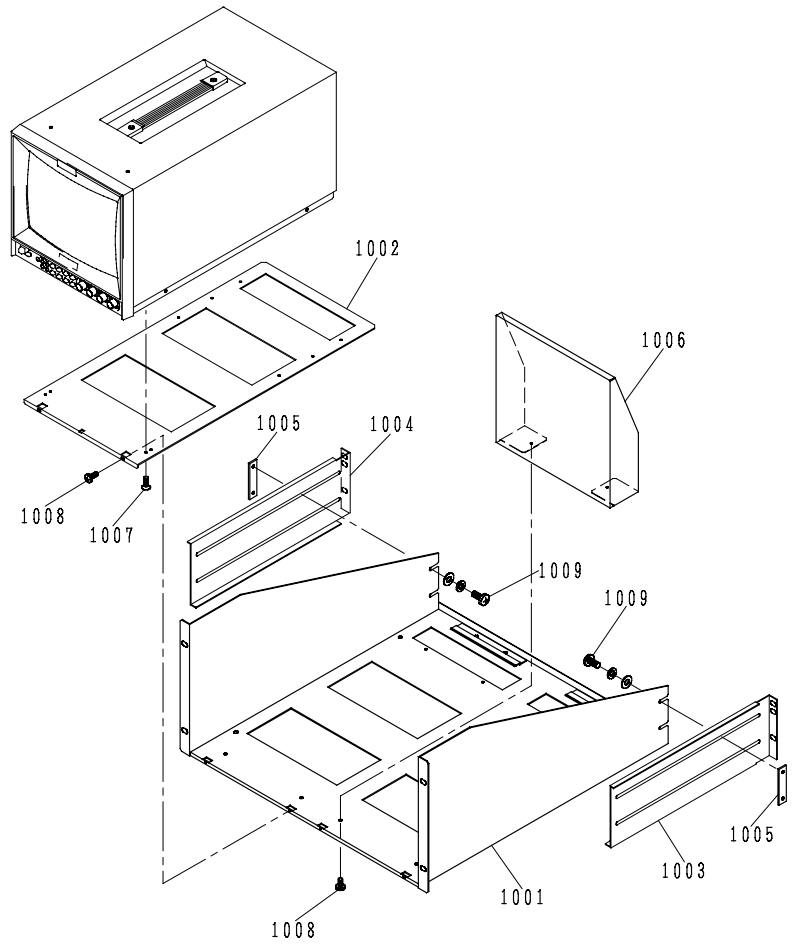


XRM-744 RACK MOUNT

	No.	INDEX	PARTS NAME	PARTS No.	Q'ty
	1001	2-C	PACK MOUNT BASE	M1-922857	1
	1002	1-B, 2-B	ADAPTOR BOARD	M3-923834	2
*1	1003	2-C	BRACKET	M4-917704 (R)	1
*1	1004	1-B	BRACKET	M4-917704 (L)	1
*1	1005	1-B, 3-C	BAR NUT	M4-907579	2
	1006	1-B, 2-B	SCREW	MCF3-6FN	8
	1007	1-B, 2-B	SCREW	MCB3-6FN	4
*1	1008	2-B, 2-C	SCREW	SCB4-12FN	4

NOTE *1 A side anchor kit (XRM-814) is optional.

(2) XRM-754 installation drawing

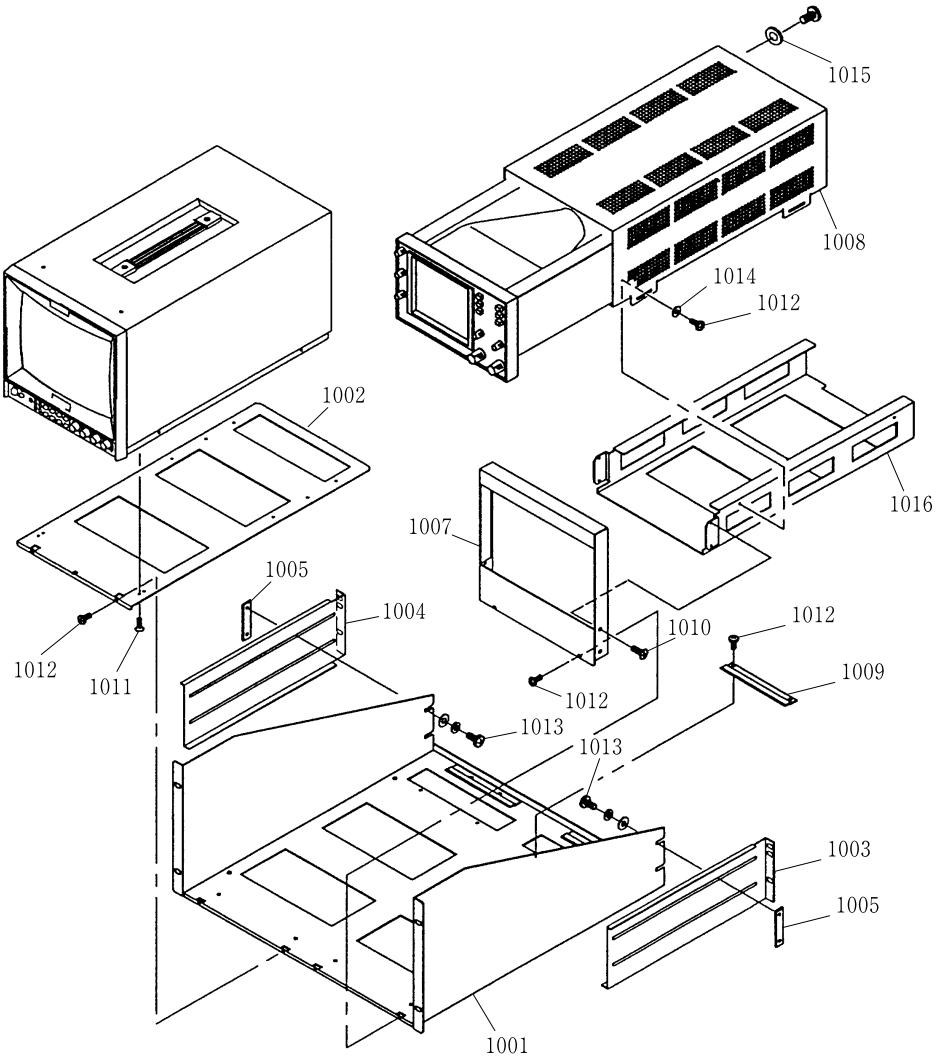


XRM-754 RACK MOUNT

	No.	INDEX	PARTS NAME	PARTS No.	Q'ty
	1001	7-C	RACK MOUNT BASE	M1-922857	1
	1002	7-A	ADAPTOR BOARD	M3-923834	1
*1	1003	8-C	BRACKET	M4-917704 (R)	1
*1	1004	7-B	BRACKET	M4-917704 (L)	1
*1	1005	7-B, 8-C	BAR NUT	M4-907579	2
	1006	8-B	BLANK PANEL	M2-909418	1
	1007	6-B	SCREW	MCF3-6FN	4
	1008	6-B, 7-C	SCREW	MCB3-6FN	4
*1	1009	7-B, 8-B	SCREW	SCB4-12FN	4

NOTE *1 A side anchor kit (XRM-814) is optional.

(3) RM-HTM-001 installation drawing



RM0HTM-001 RACK MOUNT

	No.	INDEX	PARTS NAME	PARTS No.	Q'ty
	1001	4-C	RACK MOUNT BASE	M1-922857	1
	1002	4-B	ADAPTOR BOARD	M3-923834	1
*1	1003	5-C	BRACKET	M4-917704 (R)	1
*1	1004	4-B	BRACKET	M4-917704 (L)	1
*1	1005	4-B, 5-C	BAR NUT	M4-907579	2
	1006	6-B	WFM BASE	M2-924197	1
	1007	4-B	FRONT PANEL	M3-924195	1
	1008	5-A	WFM CASE	M2-924196	1
	1009	5-B	PM MOUNT METAL	M4-907151	1
	1010	5-B	SCREW	MCF2.6-6FN	4
	1011	3-B	SCREW	MCF3-6FN	4
	1012	3-B, 5-A 5-B, 5-C	SCREW	MCB3-6FN	10
*1	1013	5-C	SCREW	SCB4-12FN	4
	1014	5-A	WASHER	W2P3FN	4
	1015	5-A	WASHER	W2P5FN	2

NOTE *1 A side anchor kit (XRM-814) is optional.

7. Memo

It is recommended that various types of preset data be entered in the table below.
Such data is useful for the management or restoration of data that is set up by experience in the field.

DATA	REF.	FILE1	FILE2	FILE3
HUE				
CHROMA				
YPbPrCHROMA*1				
BRIGHT				
CONT				
G. GAIN				
B. GAIN				
R. BKG				
G. BKG				
B. BKG				
APT				

*1 : NTSC/PAL analog YPbPr input-only

DATA		525i	625i	1035i	1080i	720p	( )	( )	( )
WIDTH	4:3 UNDER								
	4:3 NORMAL								
	16:9 UNDER								
	16:9 NORMAL								
HEIGHT	4:3 UNDER								
	4:3 NORMAL								
	16:9 UNDER								
	16:9 NORMAL								
H. PHASE	4:3 (HD)								
	16:9								
H. CENT	4:3 (HD)								
	16:9								
V. CENT									
TRAPEZOID									
SIDE PIN									

MODEL HTM-1005R/RA

HDTV/SDTV MULTI FORMAT COLOR MONITOR

OPERATION MANUAL

Published by Ikegami Tsushinki Co., Ltd.
© Nov. 2003 by Utsunomiya Factory
of Ikegami Tsushinki Co., Ltd.

■ All right reserved. Reproduction or Duprication, without permission of Ikegami Tsushinki Co., Ltd. of editional or contents in whole in part, any manner, is prohibited.

■ Specifications and design are subject to change without notice.

OMH1005R-U

Edited by Koyo 21 Co., Ltd. 04 feb.

Ikegami

Ikegami Tsushinki Co., Ltd.

5-6-16, Ikegami, Ohta-ku, Tokyo, Japan 146-8567

Phone:(03)5700-1111 Fax:(03)5700-1137

Ikegami Electronics (U.S.A.), Inc.

HEAD QUARTERS: 37Brook Avenue, Maywood, New Jersey 07607
Phone : (201) 368-9171 Fax : (201) 569-1626

NORTHEAST OFFICE: 37Brook Avenue, Maywood, New Jersey 07607
Phone : (201) 368-9171 Fax : (201) 569-1626

WEST COAST OFFICE: 20603 Earl Street, Torrance, California 90503
Phone : (310) 370-2400 Fax : (310) 370-7131

MIDWEST OFFICE: 747 Chrch Road, Unit C4 Elmhurst, IL 60126
Phone : (630) 834-9774 Fax : (630) 834-8689

SOUTHEAST OFFICE: 5200N.W.33rd Avenue, Suite 111 Fort Landerdale, Fl 33309
Phone : (945) 735-2203 Fax : (945) 735-2227

Property of

PRINTED IN JAPAN